

Grizzly **Industrial, Inc.**®

MODEL G0554Z 14" X 40" GEAR-HEAD FLOOR LATHE OWNER'S MANUAL



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**WARNING: NO PORTION OF THIS MANUAL MAY BE REPRODUCED IN ANY SHAPE
OR FORM WITHOUT THE WRITTEN APPROVAL OF GRIZZLY INDUSTRIAL, INC.**
(FOR MODELS MANUFACTURED SINCE 1/09) #TS11209 PRINTED IN CHINA



WARNING!

This manual provides critical safety instructions on the proper setup, operation, maintenance, and service of this machine/tool. Save this document, refer to it often, and use it to instruct other operators.

Failure to read, understand and follow the instructions in this manual may result in fire or serious personal injury—including amputation, electrocution, or death.

The owner of this machine/tool is solely responsible for its safe use. This responsibility includes but is not limited to proper installation in a safe environment, personnel training and usage authorization, proper inspection and maintenance, manual availability and comprehension, application of safety devices, cutting/sanding/grinding tool integrity, and the usage of personal protective equipment.

The manufacturer will not be held liable for injury or property damage from negligence, improper training, machine modifications or misuse.



WARNING!

Some dust created by power sanding, sawing, grinding, drilling, and other construction activities contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm. Some examples of these chemicals are:

- **Lead from lead-based paints.**
- **Crystalline silica from bricks, cement and other masonry products.**
- **Arsenic and chromium from chemically-treated lumber.**

Your risk from these exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals: Work in a well ventilated area, and work with approved safety equipment, such as those dust masks that are specially designed to filter out microscopic particles.

Table of Contents

INTRODUCTION	2	SECTION 6: MAINTENANCE	50
Manual Accuracy	2	Schedule	50
Contact Info.....	2	Cleaning & Protecting	50
Machine Description	2	Lubrication	51
Identification.....	3	Tensioning/Replacing V-Belts.....	53
Machine Data Sheet	4	Checking/Cleaning Coolant System	54
SECTION 1: SAFETY	6	SECTION 7: SERVICE	56
Safety Instructions for Machinery	6	Troubleshooting	56
Additional Safety Instructions for Metal Lathes	8	Cross Slide Backlash Adjustment.....	58
Gib Adjustments.....	8	Tailstock Lock Adjustment.....	59
SECTION 2: CIRCUIT REQUIREMENTS	9	Shear Pin Replacement.....	60
220V Single-Phase Operation	9	Brake Pads	61
SECTION 3: SETUP	10	Spindle Bearing Preload	62
Needed for Setup.....	10	Gap Removal	64
Unpacking	10	SECTION 8: WIRING	65
Inventory	11	Wiring Safety Instructions	65
Cleanup.....	12	Electrical Overview	66
Site Considerations.....	13	Electrical Cabinet Identification.....	67
Placing & Assembling Lathe	14	Electrical Cabinet Wiring Diagram	68
Mounting to Shop Floor	16	Electrical Components (A)	69
Checking Gear Oil	16	Electrical Components (B)	70
Test Run	16	Electrical Components (C).....	71
Spindle Break-In	19	SECTION 9: PARTS	72
Recommended Adjustments.....	19	Headstock Shifting	72
SECTION 4: OPERATIONS	20	Headstock Gearing	74
Operation Overview	20	Headstock Spindle	76
Basic Controls.....	21	Gearbox Shifting	78
Chuck & Faceplate Mounting.....	24	Gearbox Gearing	80
3-Jaw Chuck	26	Apron Controls	82
4-Jaw Chuck	28	Apron Gearing.....	83
Faceplate	29	Saddle & Cross Slide.....	84
Centers	30	Compound Slide & Tool Post	86
Offsetting Tailstock	32	Tailstock.....	87
Tailstock Alignment.....	33	Follow Rest	88
Drilling with Tailstock	34	Thread Dial	88
Coolant System.....	35	Steady Rest	89
Steady Rest	36	Change & End Gears.....	90
Follow Rest	37	Bed & Shaft.....	91
Carriage Stop.....	37	Stand & Brake.....	93
Four-Way Tool Post.....	38	Electrical	95
Spindle Speed.....	38	Accessories.....	97
Power Feed.....	40	Label Placement	98
Threading Controls	46	WARRANTY AND RETURNS	101
SECTION 5: ACCESSORIES	48		


INTRODUCTION

Manual Accuracy

We are proud to offer this manual with your new machine! We've made every effort to be exact with the instructions, specifications, drawings, and photographs of the machine we used when writing this manual. However, sometimes errors do happen and we apologize for them.

Also, owing to our policy of continuous improvement, **your machine may not exactly match the manual**. If you find this to be the case, and the difference between the manual and machine leaves you in doubt, check our website for the latest manual update or call technical support for help.

Before calling, find the manufacture date of your machine by looking at the date stamped into the machine ID label (see below). This will help us determine if the manual version you received matches the manufacture date of your machine.

		MODEL GXXXX MACHINE NAME	
SPECIFICATIONS		▲ WARNING!	
Motor:		Manufacture Date of Your Machine	ing this machine:
Specification:			s and respirator.
Specification:			sted/setup and
Specification:			suit before starting.
Specification:			4. make sure the motor has stopped and disconnect power before adjustments, maintenance, or service.
Weight:		5. DO NOT expose to rain or dampness.	
<input type="text"/> Date		6. DO NOT modify this machine in any way.	
<input type="text"/> Serial Number		7. DO NOT remove safety guards.	
Manufactured for Grizzly in Taiwan		8. Never leave machine running unattended.	
		9. DO NOT operate under the influence of drugs or alcohol.	
		10. Maintain machine carefully to prevent accidents.	

For your convenience, we post all available manuals and manual updates for free on our website at www.grizzly.com. Any updates to your model of machine will be reflected in these documents as soon as they are complete.

Contact Info

We stand behind our machines. If you have any service questions, parts requests or general questions about the machine, please call or write us at the location listed below.

Grizzly Industrial, Inc.
1203 Lycoming Mall Circle
Muncy, PA 17756
Phone: (570) 546-9663
Fax: (800) 438-5901
E-Mail: techsupport@grizzly.com

If you have any comments regarding this manual, please write to us at the address below:

Grizzly Industrial, Inc.
c/o Technical Documentation Manager
P.O. Box 2069
Bellingham, WA 98227-2069
Email: manuals@grizzly.com

Machine Description

The metal lathe is used to remove material from a rotating workpiece, which is held in place on the spindle with a chuck or faceplate. The cutting tool is mounted on the carriage or tailstock and moved against the spinning workpiece to perform the cut.

Typical cutting operations for a metal lathe include facing, turning, parting, drilling, reaming, grooving, knurling, and threading. There are a wide variety of tools and workpiece holding devices available for each of these operations.



Identification

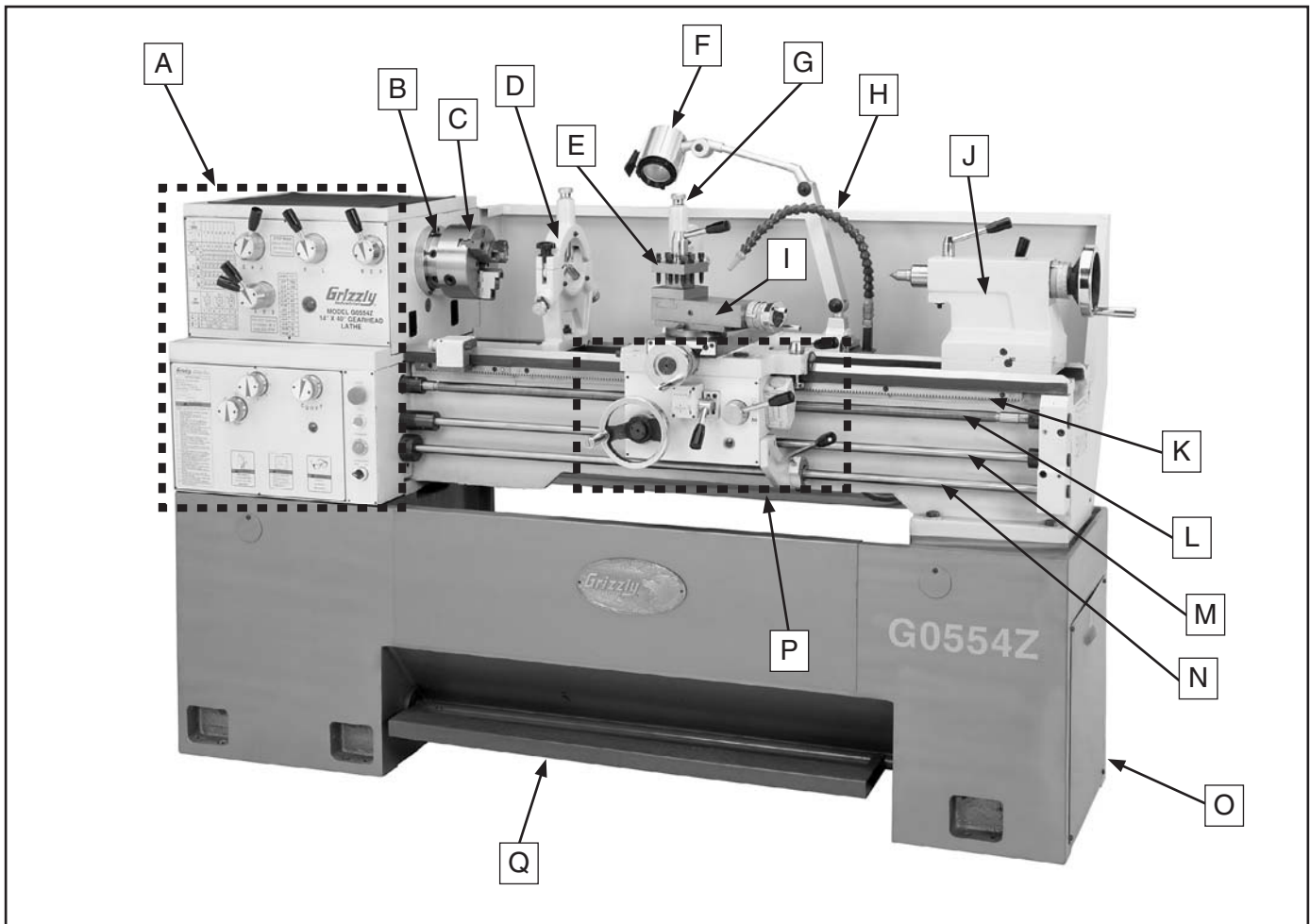


Figure 1. Model G0554Z identification.

- | | |
|--|---|
| A. Headstock (refer to Headstock Controls on Page 21 for details) | J. Tailstock (refer to Tailstock Controls on Page 23 for details) |
| B. Spindle MT#5 | K. Carriage Rack |
| C. 3-Jaw Chuck | L. Longitudinal Leadscrew |
| D. Steady Rest | M. Feed Rod |
| E. 4-Way Tool Post | N. Spindle Control Rod |
| F. Halogen Work Light | O. Coolant Tank Access Panel |
| G. Follow Rest | P. Carriage Controls (refer to Carriage Controls on Page 22 for details) |
| H. Coolant Nozzle | Q. Foot Brake |
| I. Compound Slide | |





MACHINE DATA SHEET

Customer Service #: (570) 546-9663 · To Order Call: (800) 523-4777 · Fax #: (800) 438-5901

MODEL G0554Z 14" X 40" GEAR-HEAD FLOOR LATHE

Product Dimensions:

Weight..... 2750 lbs.
 Length/Width/Height..... 75 x 28 x 46 in.
 Foot Print (Length/Width)..... 74-1/2 x 19-1/4 in.

Shipping Dimensions:

Type..... Wood Crate
 Content..... Machine
 Weight..... 2578 lbs.
 Length/Width/Height..... 79 x 30 x 57 in.

Electrical:

Minimum Circuit Size..... 20 Amp
 Switch..... Magnetic Switch
 Switch Voltage..... 220V
 Plug Included..... No

Motors:

Main

Type..... TEFC Capacitor Start Induction
 Horsepower..... 3 HP
 Voltage..... 220V
 Phase..... Single
 Amps..... 14 A
 Speed..... 1725 RPM
 Cycle..... 60 Hz
 Number Of Speeds..... 1
 Power Transfer Belt Drive to Gear
 Bearings..... Shielded and Permanently Lubricated

Main Specifications:

Operation Info

Swing Over Bed..... 14 in.
 Dist Between Centers..... 39-3/8 in.
 Swing Over Cross Slide..... 8 in.
 Swing Over Saddle..... 8-1/2 in.
 Swing Over Gap..... 20 in.
 Max Tool Bit Size..... 5/8 in.
 Compound Travel..... 3-1/2 in.
 Carriage Travel..... 37-1/4 in.
 Cross Slide Travel..... 6-3/4 in.

Headstock Info

Spindle Bore..... 1-1/2 in.
 Spindle Taper..... MT#5
 No Of Spindle Speeds..... 12
 Spindle Speeds..... 40, 60, 85, 115, 160, 230, 325, 460, 650, 910, 1280, 1800 RPM
 Spindle Type..... D1-4 Camlock
 Spindle Bearings..... Tapered Roller



Tailstock Info

Tailstock Travel..... 4-3/4 in.
Tailstock Taper..... MT#3
Tailstock Barrel Diameter..... 1-25/32 in.

Threading Info

No Of Inch Threads..... 40
Range Of Inch Threads..... 4-112 TPI
Range Of Longitudinal Feeds..... 0.0012-0.0294 in.
No Of Longitudinal Feeds..... 40
No Of Cross Feeds..... 40
Range Of Cross Feeds..... 0.0004-0.0103 in./rev.
No Of Metric Threads..... 23
Range Of Metric Threads..... 0.45-7.5 mm

Dimensions

Bed Width..... 10 in.
Leadscrew TPI..... 8
Leadscrew Length..... 52-5/8 in.
Steady Rest Capacity..... 1/2 - 3-3/8 in.
Follow Rest Capacity..... 1/2 - 2-5/8 in.
Faceplate Size..... 12 in.
Leadscrew Diameter..... 7/8 in.
Feed Rod Diameter..... 3/4 in.
Floor To Center Height..... 41-3/4 in.

Construction

Base Construction..... Cast Iron
Headstock Construction..... Cast Iron
Headstock Gears Construction..... Flame Hardened Steel
Bed Construction..... Induction Hardened Cast Iron
Body Construction..... Cast Iron
Stand Construction..... Cast Iron
Paint..... Epoxy

Other

Kilowatt Output..... 2.2

Other Specifications:

Country Of Origin China
Warranty 1 Year
Serial Number Location Leftside of Gearbox (Headstock Side), also Tailstock End Between Bed Ways
Awards Production Technology News Editor's Choice 2004

Features:

- Coolant System
- Foot Brake
- Full Length Splash Guard
- Halogen Light
- Hardened and Ground Gears in Headstock
- Inch and Metric Dials
- Induction Hardened Bedways
- Jog Button and Emergency Stop
- Micrometer Carriage Stop
- One Piece Cast Iron Stand
- Threading Dial



SECTION 1: SAFETY

WARNING

For Your Own Safety, Read Instruction Manual Before Operating this Machine

The purpose of safety symbols is to attract your attention to possible hazardous conditions. This manual uses a series of symbols and signal words intended to convey the level of importance of the safety messages. The progression of symbols is described below. Remember that safety messages by themselves do not eliminate danger and are not a substitute for proper accident prevention measures.



Indicates an imminently hazardous situation which, if not avoided, **WILL** result in death or serious injury.



Indicates a potentially hazardous situation which, if not avoided, **COULD** result in death or serious injury.



Indicates a potentially hazardous situation which, if not avoided, **MAY** result in minor or moderate injury. It may also be used to alert against unsafe practices.

NOTICE

This symbol is used to alert the user to useful information about proper operation of the machine.

WARNING

Safety Instructions for Machinery

OWNER'S MANUAL. Read and understand this owner's manual **BEFORE** using machine. Untrained users can be seriously hurt.

EYE PROTECTION. Always wear ANSI-approved safety glasses or a face shield when operating or observing machinery. to reduce the risk of eye injury or blindness from flying particles Everyday eyeglasses are not approved safety glasses.

HAZARDOUS DUST. Dust created while using machinery may cause cancer, birth defects, or long-term respiratory damage. Be aware of dust hazards associated with each workpiece material, and always wear a NIOSH-approved respirator to reduce your risk.

WEARING PROPER APPAREL. Do not wear clothing, apparel, or jewelry that can become entangled in moving parts. Always tie back or cover long hair. Wear non-slip footwear to avoid accidental slips which could cause a loss of workpiece control.

HEARING PROTECTION. Always wear hearing protection when operating or observing loud machinery. Extended exposure to this noise without hearing protection can cause permanent hearing loss.

MENTAL ALERTNESS. Be mentally alert when running machinery. Never operate under the influence of drugs or alcohol, when tired, or when distracted.



WARNING

Safety Instructions for Machinery

DISCONNECTING POWER SUPPLY. Always disconnect machine from power supply before servicing, adjusting, or changing cutting tools (bits, blades, cutters, etc.). Make sure switch is in OFF position before reconnecting to avoid an unexpected or unintentional start.

INTENDED USE. Only use the machine for its intended purpose and only use recommended accessories. Never stand on machine, modify it for an alternative use, or outfit it with non-approved accessories.

STABLE MACHINE. Unexpected movement during operations greatly increases the risk of injury and loss of control. Verify machines are stable/secure and mobile bases (if used) are locked before starting.

FORCING MACHINERY. Do not force machine. It will do the job safer and better at the rate for which it was designed.

GUARDS & COVERS. Guards and covers can protect you from accidental contact with moving parts or flying debris. Make sure they are properly installed, undamaged, and working correctly before using machine.

REMOVING TOOLS. Never leave adjustment tools, chuck keys, wrenches, etc. in or on machine—especially near moving parts. Verify removal before starting!

AWKWARD POSITIONS. Keep proper footing and balance at all times when operating machine. Do not overreach! Avoid awkward hand positions that make workpiece control difficult or increase the risk of accidental injury.

DANGEROUS ENVIRONMENTS. Do not use machinery in wet locations, cluttered areas, around flammables, or in poorly-lit areas. Keep work area clean, dry, and well lighted to minimize risk of injury.

APPROVED OPERATION. Untrained operators can be seriously hurt by machinery. Only allow trained or properly supervised people to use machine. When machine is not being used, disconnect power, remove switch keys, or lock-out machine to prevent unauthorized use—especially around children. Make workshop kid proof!

CHILDREN & BYSTANDERS. Keep children and bystanders a safe distance away from work area. Stop using machine if children or bystanders become a distraction.

FEED DIRECTION. Unless otherwise noted, feed work against the rotation of blades or cutters. Feeding in the same direction of rotation may pull your hand into the cut.

SECURING WORKPIECE. When required, use clamps or vises to secure workpiece. A secured workpiece protects hands and frees both of them to operate the machine.

UNATTENDED OPERATION. Never leave machine running while unattended. Turn machine **OFF** and ensure all moving parts completely stop before walking away.

MAINTENANCE & INSPECTION. A machine that is not properly maintained may operate unpredictably. Follow all maintenance instructions and lubrication schedules to keep machine in good working condition. Regularly inspect machine for loose bolts, alignment of critical parts, binding, or any other conditions that may affect safe operation. Always repair or replace damaged or mis-adjusted parts before operating machine.

EXPERIENCING DIFFICULTIES. If at any time you are experiencing difficulties performing the intended operation, stop using the machine! Contact our Technical Support Department at (570) 546-9663.



WARNING

Additional Safety for Metal Lathes

- 1. CLEARING CHIPS.** Metal chips can easily cut bare skin—even through a piece of cloth. Avoid clearing chips by hand or with a rag. Use a brush or vacuum to clear metal chips.
- 2. CHUCK KEY SAFETY.** A chuck key left in the chuck can become a dangerous projectile when the spindle is started. Always remove chuck key after using it. Develop a habit of not taking your hand off of a chuck key unless it is away from the machine.
- 3. TOOL SELECTION.** Cutting with an incorrect or dull tool increases the risk of accidental injury because extra force is required, which increases risk of breaking or dislodging components. Always select the right cutter for the job, and make sure it is sharp. A correct, sharp tool decreases strain and provides a better finish.
- 4. SECURING THE WORKPIECE.** Make sure workpiece is properly secured in the chuck or faceplate before starting the lathe. A thrown workpiece may cause severe injury or even death.
- 5. LARGE CHUCKS.** Large chucks are very heavy and difficult to grasp, which can lead to crushed fingers or hands if mishandled. Get assistance when installing or removing large chucks to reduce this risk. Protect your hands and the precision ground ways by using a chuck cradle or piece of plywood over the ways of the lathe when servicing chucks.
- 6. SAFE CLEARANCES.** Workpieces that crash into other components on the lathe may throw dangerous projectiles in all directions. Before starting the spindle, make sure workpiece has adequate clearance by rotating it through its entire range of motion. Also, check tool and tool post clearance, chuck clearance, and saddle clearance.
- 7. SPEED RATES.** Operating the lathe at the wrong speed can cause nearby parts to break or the workpiece to come loose, which could result in them becoming dangerous projectiles. Large workpieces must be turned at slow speeds. Always use the appropriate feed and speed rates.
- 8. STOPPING LATHE BY HAND.** Stopping the spindle by putting your hand on the workpiece or chuck creates an extreme risk of entanglement, impact, crushing, friction, or cutting hazards. Never attempt to slow or stop the lathe chuck by using your hand. Allow the spindle to come to a stop on its own or use the brake (if equipped).
- 9. CRASHES.** Driving the cutting tool or other lathe component into the chuck may cause an explosion of metal fragments, which can result in severe impact injuries and major damage to the lathe. Reduce this risk by releasing automatic feeds after use, not leaving lathe unattended, and checking clearances before starting the lathe. Make sure no part of the tool, tool holder, compound slide, cross slide, or carriage will contact the chuck during operation.
- 10. LONG STOCK SAFETY.** Long stock can whip violently if not properly supported, causing serious impact injury and damage to the lathe. Reduce this risk by supporting any stock that extends from the chuck/headstock more than three times its own diameter. Always turn long stock at slow speeds.
- 11. COOLANT SAFETY.** Contaminated coolant is a very poisonous biohazard that can cause personal injury from skin contact alone. Incorrectly positioned coolant nozzles can splash on the operator or the floor, resulting in an exposure or slipping hazard. To decrease your risk, change coolant regularly and position the coolant nozzle where it will not splash or end up on the floor.



SECTION 2: CIRCUIT REQUIREMENTS

220V Single-Phase Operation

!WARNING

Serious personal injury could occur if you connect the machine to power before completing the setup process. **DO NOT** connect the machine to the power until instructed later in this manual.



!WARNING

Electrocution or fire could result if machine is not grounded and installed in compliance with electrical codes. Compliance **MUST** be verified by a qualified electrician!

Full Load Amperage Draw

This machine draws the following amps under maximum load:

Amp Draw..... 14 Amps

Power Supply Circuit Requirements

You **MUST** connect your machine to a grounded circuit that is rated for the amperage given below. Never replace a circuit breaker on an existing circuit with one of higher amperage without consulting a qualified electrician to ensure compliance with wiring codes. **If you are unsure about the wiring codes in your area or you plan to connect your machine to a shared circuit, consult a qualified electrician.**

Minimum Circuit Size..... 20 Amps

Minimum Cord Requirements

Use a stranded-copper flexible cord that meets the minimum requirements listed below, does not exceed 50 ft., and has an insulation type that starts with "S." A qualified electrician **MUST** determine the best cord to use in your environment depending on exposure to moisture, heat, and oils. Refer to the **Power Terminal** wiring diagram on **Page 70** for connection details.

220V Single-Phase..... 14/3 AWG, 300VAC

Power Connection Device

The type of plug required to connect your machine to power depends on the type of service you currently have or plan to install. We recommend using the plug shown in **Figure 2**.

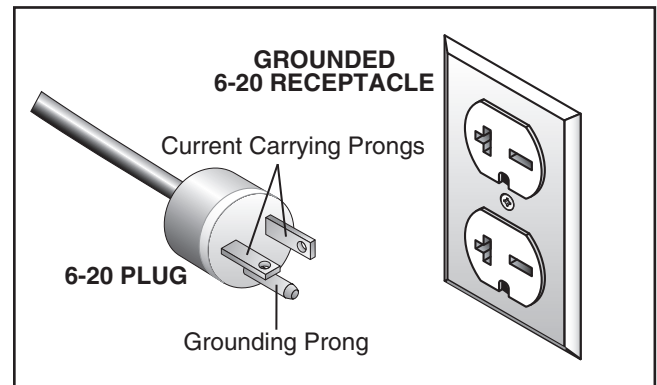


Figure 2. NEMA 6-20 plug and receptacle.

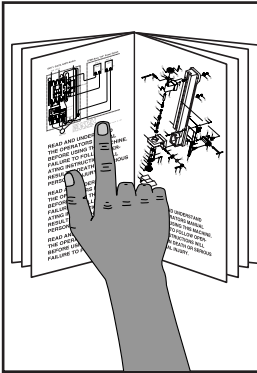
Extension Cords

Using extension cords may reduce the life of the motor. Instead, place the machine near a power source. If you must use an extension cord:

- Use at least a 14 gauge cord that does not exceed 50 feet in length!
- The extension cord must also have a ground wire and plug pin.
- A qualified electrician **MUST** size cords over 50 feet long to prevent motor damage.

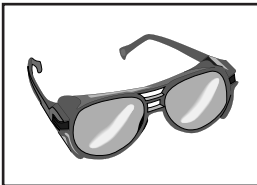


SECTION 3: SETUP



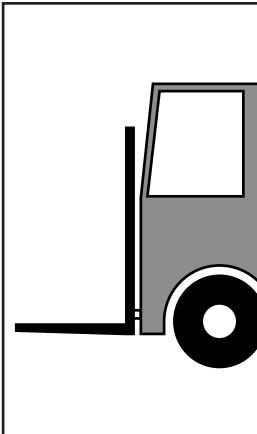
!WARNING

This machine presents serious injury hazards to untrained users. Read through this entire manual to become familiar with the controls and operations before starting the machine!



!WARNING

Wear safety glasses during the entire setup process!



!WARNING

The Model G0554Z is a heavy machine. Serious personal injury may occur if safe moving methods are not used. To be safe, get assistance and use power equipment rated for at least 3500 lbs. to move the shipping crate and machine.

Needed for Setup

The following are needed to complete the setup process, but are not included with your machine:

Description	Qty
• Additional People	At Least 1
• Safety Glasses	1 Per Person
• Lifting Web Straps (Rated 3500 lbs.)	4
• Iron/Steel Round Stock 1¼" x 36"	2
• Forklift or Hoist (Rated 3500 lbs.)	1
• Precision Level	1
• Mounting Hardware (Page 16)	Optional
• Shop Rags for Cleaning	As Needed
• Stiff Brush for Cleaning	1
• Cleaning Solvent (Page 12)	As Needed

Unpacking

Your machine was carefully packaged for safe transportation. Remove the packaging materials from around your machine and inspect it. If you discover the machine is damaged, *please immediately call Customer Service at (570) 546-9663 for advice.*

Save the containers and all packing materials for possible inspection by the carrier or its agent. *Otherwise, filing a freight claim can be difficult.*

When you are completely satisfied with the condition of your shipment, inventory the contents.



Inventory

The following is a description of the main components shipped with your lathe. Lay the components out to inventory them.

Note: *If you can't find an item on this list, check the mounting location on the machine or examine the packaging materials carefully. Occasionally we pre-install certain components for shipping purposes.*

Inventory: (Figures 3–4)	Qty
A. 4-jaw Chuck 8"	1
B. Faceplate 12".....	1
C. Foot Pad Leveling Bolts & Hex Nuts	6
D. Cast Iron Foot Pads	6
E. 4-jaw Chuck Key	1
F. Shear Pins.....	2
G. Tool Box.....	1
H. Spindle Lock Key.....	1
I. Oil Can	1
J. 3-Jaw Chuck Key	1
K. Dead Centers:	
—HSS MT#3 Dead Center	1
—Carbide-Tipped MT#3 Dead Center.....	1
L. Tapered Sleeve MT#5–MT#3	1
M. Screwdrivers Flat & Phillips #2.....	1 Each
N. Handwheel Handles	2
O. Hex Wrenches 2.5, 3, 4, 5, 6, & 8mm	1 Each
P. 4-Way Tool Post Wrench.....	1
Q. Change Gears 30T, 32T, 35T, 40T (2), 48T	1 Each
R. Open-End Wrenches 9/11, 10/12, 12/14, 14/17mm.....	1 Each
S. Cap Screws M8-1.25 x 45 (not shown)	2
T. 3-Jaw Chuck 6" (pre-installed)	1
U. Steady Rest (pre-installed).....	1
V. Follow Rest (pre-installed).....	1

If any nonproprietary parts are missing (e.g. a nut or a washer), we will gladly replace them; or for the sake of expediency, replacements can be obtained at your local hardware store.

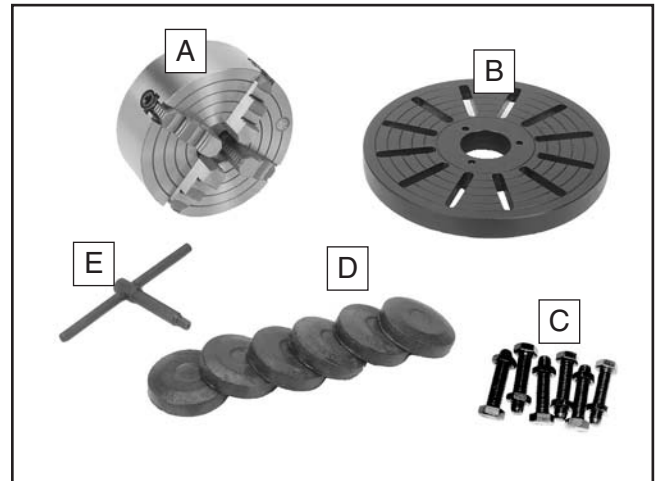


Figure 3. Model G0554Z inventory 1.

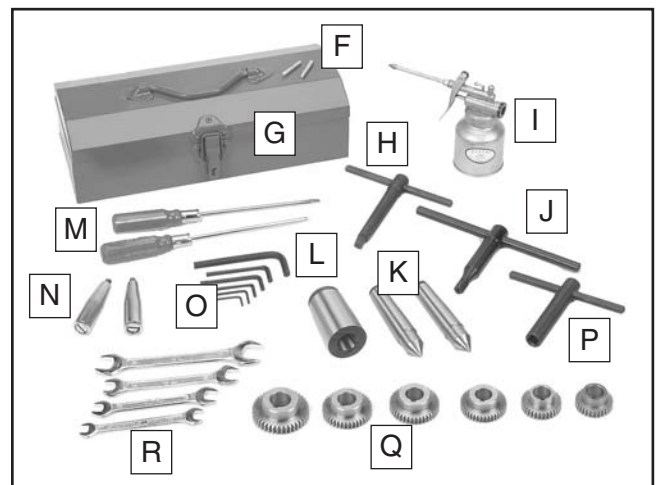



Figure 4. Model G0554Z inventory 2.



!WARNING

SUFFOCATION HAZARD!

Immediately discard all plastic bags and packing materials to eliminate choking/suffocation hazards for children and animals.



Cleanup

The unpainted surfaces of your machine are coated with a heavy-duty rust preventative that prevents corrosion during shipment and storage.

This rust preventative has been your machine's close ally and guardian since it left the factory. If your machine arrived to you free of rust, then be thankful that the rust preventative protected it during its journey...and try to stay thankful as you clean it off, because it can be challenging to remove if you are unprepared and impatient.

Plan on spending some time cleaning your machine. The time you spend doing this will reward you with smooth sliding parts and a better appreciation for the proper care of your machine's unpainted surfaces.

Although there are many ways to successfully remove the rust preventative, these instructions walk you through what works well for us.

Before cleaning, gather the following:

- Disposable Rags
- Cleaner/degreaser (see below)
- Safety glasses & disposable gloves

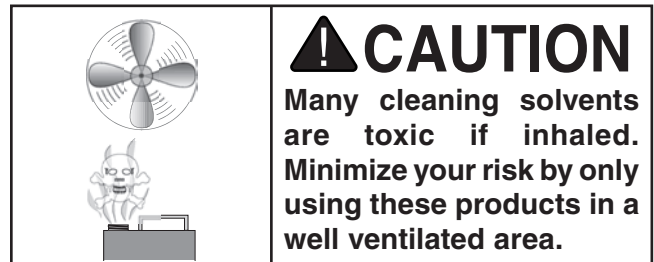
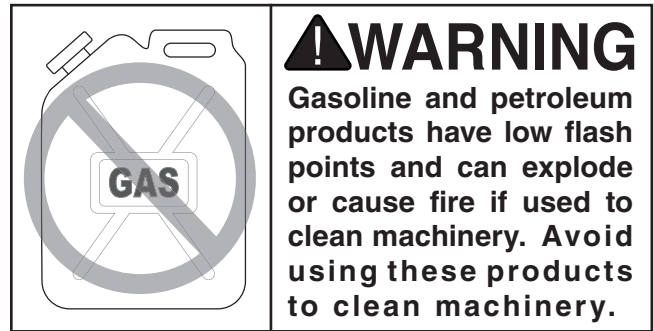
H9692—Orange Power Cleaner & Degreaser

One of the best cleaners we've found for quickly and easily removing rust preventative.



Figure 4. Model H9692 Industrial Orange Power Cleaner/Degreaser (99.9% biodegradable).

Note: *In a pinch, automotive degreasers, mineral spirits or WD•40 can be used to remove rust preventative. Before using these products, though, test them on an inconspicuous area of your paint to make sure they will not damage it.*



Basic steps for removing rust preventative:

1. Put on safety glasses and disposable gloves.
2. Coat all surfaces that have rust preventative with a liberal amount of your cleaner/degreaser and let them soak for few minutes.
3. Wipe off the surfaces. If your cleaner/degreaser is effective, the rust preventative will wipe off easily.

Note: *To clean off thick coats of rust preventative on flat surfaces, such as tables, use a PLASTIC paint scraper to scrape off the majority of the coating before wiping it off with your rag. (Do not use a metal scraper or you may scratch your machine.)*

4. Repeat **Steps 2–3** as necessary until clean, then coat all unpainted surfaces with a quality metal protectant to prevent rust.



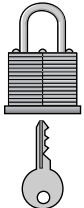
Site Considerations

Weight Load

Refer to the **Machine Data Sheet** for the weight of your machine. Make sure that the surface upon which the machine is placed will bear the weight of the machine, additional equipment that may be installed on the machine, and the heaviest workpiece that will be used. Additionally, consider the weight of the operator and any dynamic loading that may occur when operating the machine.

Space Allocation

Consider the largest size of workpiece that will be processed through this machine and provide enough space around the machine for adequate operator material handling or the installation of auxiliary equipment. With permanent installations, leave enough space around the machine to open or remove doors/covers as required by the maintenance and service described in this manual. **See below for required space allocation.**

	<p>CAUTION Children or untrained people may be seriously injured by this machine. Only install in an access restricted location.</p>
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Physical Environment

The physical environment where your machine is operated is important for safe operation and the longevity of its components. For best results, operate this machine in a dry environment that is free from excessive moisture, hazardous chemicals, airborne abrasives, or extreme conditions. Extreme conditions for this type of machinery are generally those where the ambient temperature range exceeds 41°–104°F; the relative humidity range exceeds 20–95% (non-condensing); or the environment is subject to vibration, shocks, or bumps.

Electrical Installation

Place this machine near an existing power source. Make sure all power cords are protected from traffic, material handling, moisture, chemicals, or other hazards. Make sure to leave access to a means of disconnecting the power source or engaging a lockout/tagout device.

Lighting

Lighting around the machine must be adequate enough that operations can be performed safely. Shadows, glare, or strobe effects that may distract or impede the operator must be eliminated.

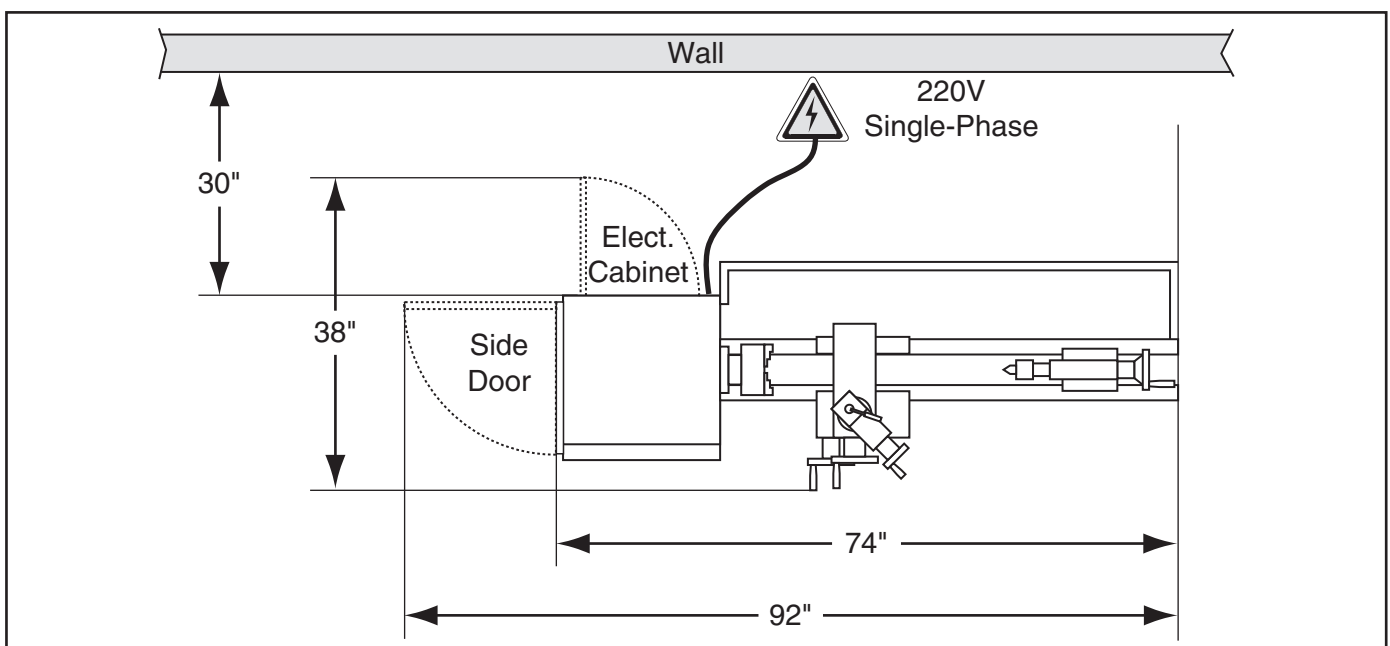
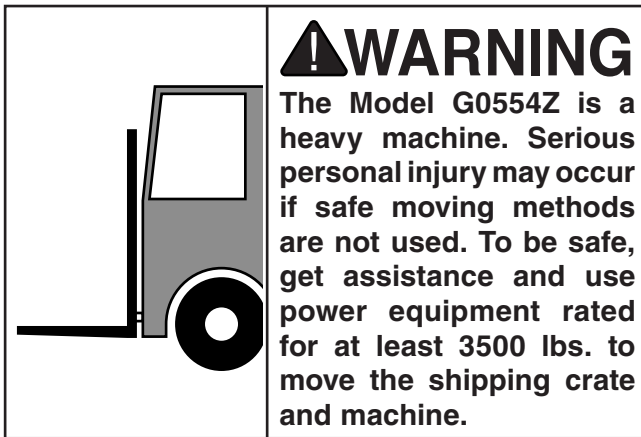


Figure 6. Minimum working clearances.



Placing & Assembling Lathe



To place and assemble your lathe:

1. Prepare the permanent location for the lathe and select the method of mounting it to the floor (refer to **Mounting to Shop Floor** on **Page 16** for options).

Note: As an additional option, you can use the six cast iron foot pads and leveling hardware that are included with your lathe.

2. Remove the shipping crate top and sides, then remove the small components from the shipping pallet.
3. Move the lifting hole covers out of the way and slide the iron/steel round stock lifting bars completely through each end of the stand (see **Figure 7**).

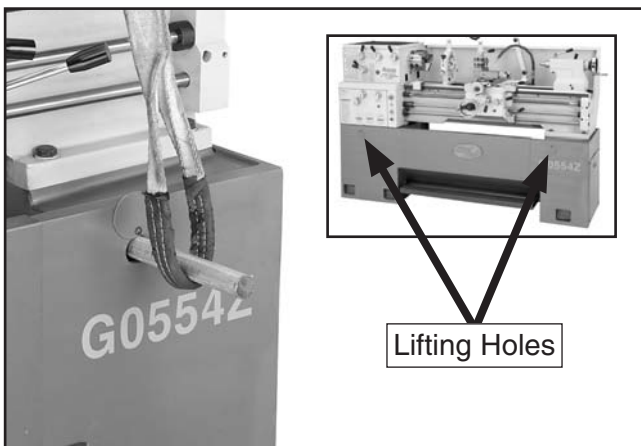


Figure 7. Lifting strap positioned on a lifting bar that is inserted through the lifting holes.

4. To balance the lifting load, loosen the tailstock lock lever, move the tailstock to the end of the bedway, then lock it in place (see **Figure 8**).

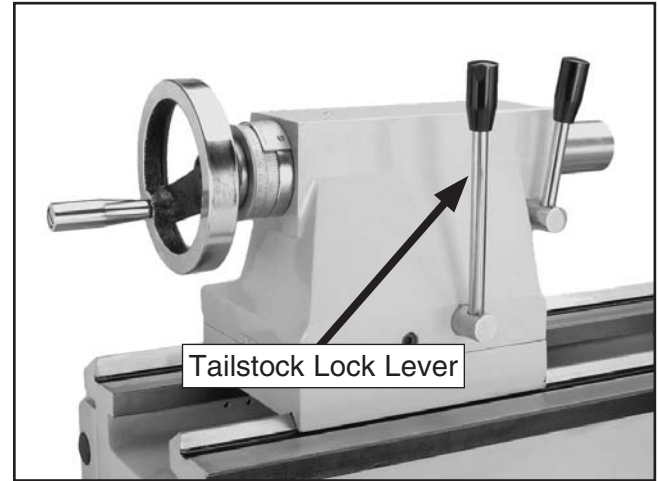


Figure 8. Tailstock lock lever.

5. To further balance the load, loosen the carriage lock, make sure the feed lever is in the center (disengaged) position, the half-nut lever is in the up (disengaged) position, then use the carriage handwheel to move the carriage to the right (see **Figure 9**).

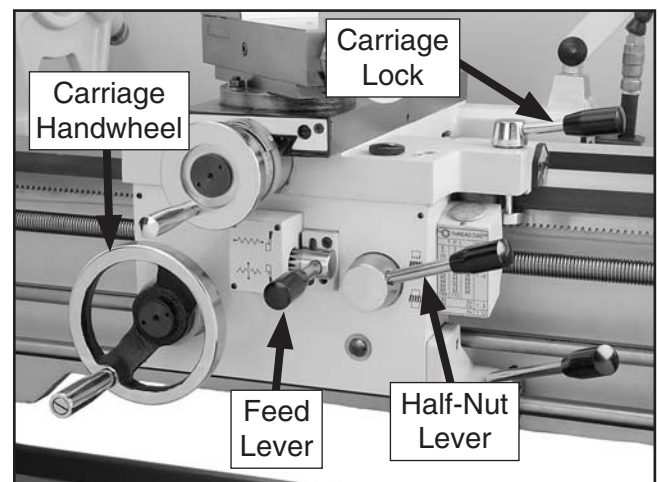


Figure 9. Carriage controls set for moving the carriage.



6. Attach the lifting web straps to the lifting bars and the powered lifting equipment.

Note: Make sure to position the straps on the lifting bars up against the lathe to provide the best lifting safety. Also, make sure the straps will not put strain on any part of the carriage, leadscrew, or shafts.

7. Unbolt the lathe from the shipping pallet, then with an assistant to steady the load, raise the lathe a couple of inches.

—If the load is not well balanced or you see any other difficulties with the lifting equipment, immediately lower the lathe to the pallet again. Resolve any lifting or balancing issues, then repeat this step.

Note: If you will be using the foot pads and leveling hardware included with your lathe, thread the thin hex nuts onto the leveling bolts, then thread the leveling bolts through the top of the threaded holes at each of the six mounting locations (see **Figure 10**).

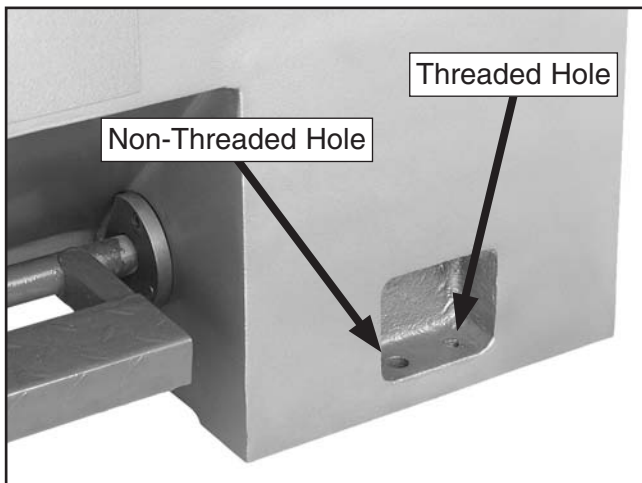


Figure 10. Machine mounting holes.

8. With assistance to balance the load, move it to the prepared location and lower it in place.

NOTICE

For accurate turning results and to prevent cracking or warping of the cast iron bed and ways, the lathe **MUST be made level from side-to-side and from front-to-back.**

Re-check the bedways the first 24 hours after installation, two weeks after that, and once every year to make sure they remain level.

9. Use a precision level to make sure the bedways are level from side-to-side and from front-to-back.

—If you are using the included foot pads, adjust the leveling bolts to make the bedways level, then tighten down the thin hex nut to secure the settings.

—If you are using mounting hardware that does not allow for adjustment, use metal shims between the lathe and the floor to make the bedways level before bolting the machine to the floor.

10. After removing the lifting bars from the stand, replace the covers over the lifting holes to prevent debris from entering the stand cavities.

11. Install the larger handle onto the carriage handwheel, and the smaller one onto the cross slide handwheel, as shown in **Figure 11**.

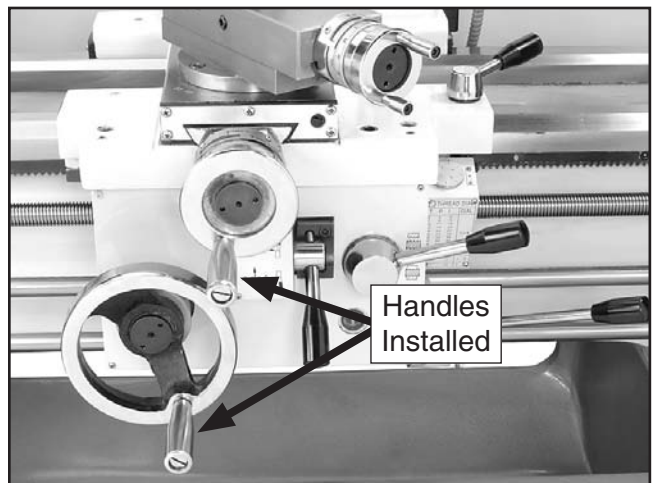


Figure 11. Carriage and cross slide handles installed.



Mounting to Shop Floor

You can either bolt your machine to the floor or use the included foot pads and leveling hardware. Because mounting your lathe to the floor with permanent hardware is an optional step and floor materials may vary, floor mounting hardware is not included. Whichever option you choose, it is necessary to first level your machine with a precision level to prevent cracking or warping of the cast iron bed and ways, as described on the previous page.

Bolting to Concrete Floors

Anchor studs and lag shield anchors with lag bolts (Figure 12) are two popular methods for anchoring an object to a concrete floor. We suggest you research the many options and methods for mounting your machine and choose the best that fits your specific application.

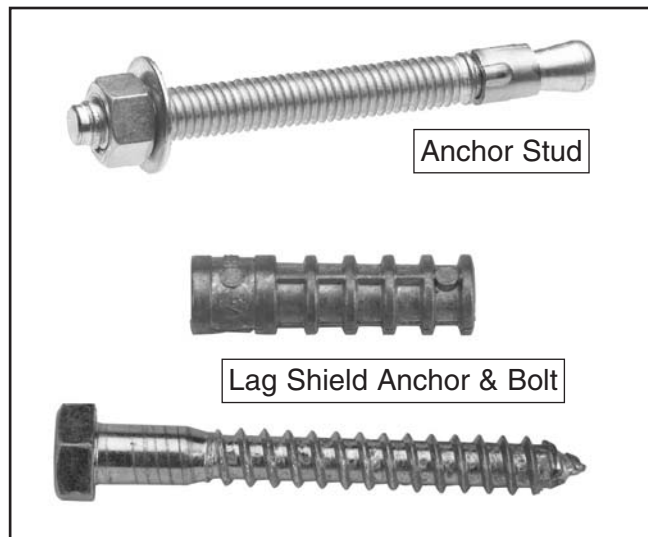


Figure 12. Typical fasteners for mounting to concrete floors.

NOTICE

We strongly recommend securing your machine to the floor if it is hardwired to the power source. Consult with your electrician to ensure compliance with local codes.

Checking Gear Oil



You must make sure the headstock, gearbox, and apron oil reservoirs have oil in them before running the lathe for the first time to ensure the gears are not damaged. Refer to the **Lubrication** section on **Page 52** for detailed instructions.

Test Run

Once the assembly is complete, test run your machine to make sure it runs properly and is ready for regular operation. The test run consists of verifying the following: 1) The motor powers up and runs correctly, 2) the stop button safety feature works correctly, 3) the coolant system operates correctly, 4) the foot brake works correctly, and 5) the left side door safety switch works correctly.

If, during the test run, you cannot easily locate the source of an unusual noise or vibration, stop using the machine immediately, then review **Troubleshooting** on **Page 48**.

If you cannot find a remedy, contact our Tech Support at (570) 546-9663 for assistance.

!WARNING

Before starting the lathe, make sure you have correctly performed the preceding setup instructions, and you have read through the rest of the manual and are familiar with the various functions and safety features on this machine. Failure to follow this warning could result in serious personal injury or even death!



To test run the machine:

1. Make sure you understand the safety instructions at the beginning of the manual and that the machine is set up properly.
2. If a chuck or faceplate is mounted on the spindle, make sure that it is firmly secured and will not come loose during operation (see **Pages 24 & 29** for detailed instructions).
3. Make sure all tools and objects used during setup are cleared away from the machine.
4. Make sure the headstock, gearbox, and apron oil reservoirs are filled with oil (refer to the **Lubrication** section on **Page 52** for detailed instructions).
5. Fill the coolant reservoir with coolant (refer to **Coolant System** on **Page 54** for detailed instructions).
6. To keep the carriage components from moving during the remaining steps, set the carriage controls as follows (see **Figure 13**):
 - Move the feed lever to the center (disengaged) position.
 - Move the half-nut lever up to disengage it.

Note: If necessary, refer to **Basic Controls** beginning on **Page 21** for additional information for using the carriage controls and control panel switches.

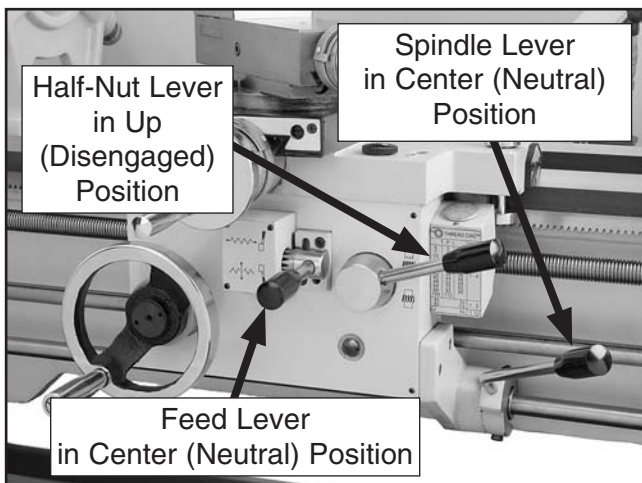


Figure 13. Carriage controls correctly setup for the **Test Run**.

7. Push the emergency STOP button in, then twist it clockwise until it pops out. When the emergency stop button pops out, the switch is reset and ready for operation (see **Figures 14–15**).

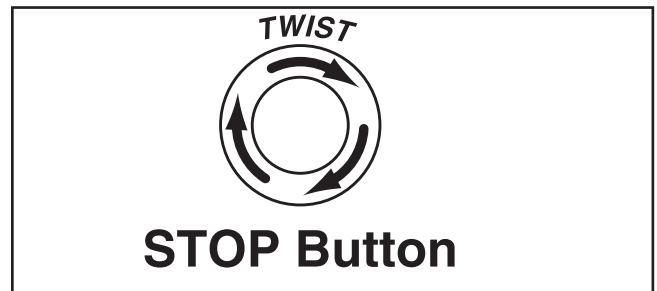


Figure 14. Resetting the switch.

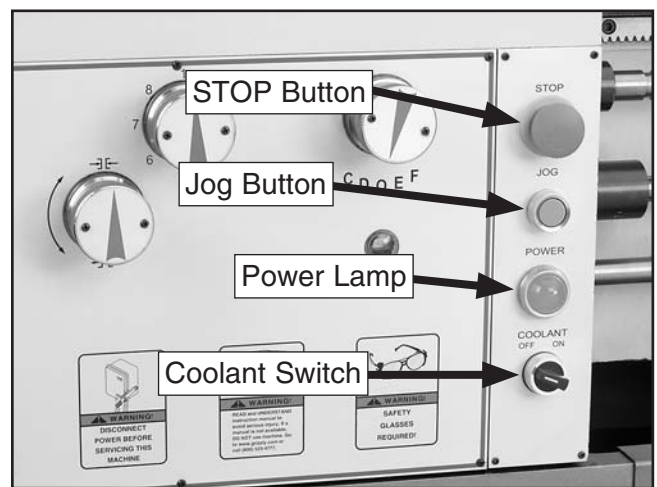


Figure 15. Control panel.

8. Connect the lathe to power, then turn the main power switch **ON** shown in **Figure 16**.

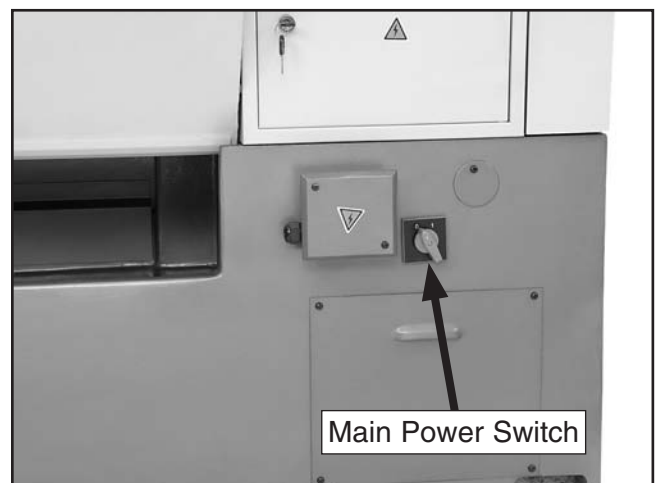


Figure 16. Main power switch on the left rear of the lathe.



9. Verify that the machine is operating correctly by moving the spindle lever down (see **Figure 13**).
 - When operating correctly, the machine runs smoothly with little or no vibration or rubbing noises.
 - Investigate and correct strange or unusual noises or vibrations before operating the machine further. Always disconnect the machine from power when investigating or correcting potential problems.
10. With the spindle lever in the down position, verify that the spindle is rotating counter-clockwise (toward the operator).
 - If the spindle is rotating clockwise (away from the operator) with the spindle lever in the down position, push the stop button, disconnect the lathe from power, then verify that the motor is wired correctly (refer to the **Motor** wiring diagram on **Page 70** for connection details). If the motor is wired correctly and the spindle does not rotate in the correct direction, call Tech Support for help.
11. Move the spindle lever to the center position to stop spindle rotation, then press the stop button in.
12. WITHOUT resetting the stop button, move the spindle lever down. The machine should not start.
 - If the machine does not start, the stop button safety feature is working correctly.
 - If the machine does start (with the stop button pushed in), immediately disconnect power to the machine. The stop button safety feature is not working correctly. This safety feature must work properly before proceeding with regular operations. Call Tech Support for help.
13. Reset the stop button.
14. To make sure the coolant system is operating correctly, point the coolant nozzle down toward the splash pan, then use the coolant switch and nozzle valve lever to start the flow of coolant.
15. Turn the coolant system **OFF**, then begin spindle rotation.
16. Step on the foot brake with moderate pressure. The lathe should shut **OFF** and the spindle should come to an immediate stop.
 - If the machine does not turn **OFF** or the spindle does not come to a stop, immediately press the stop button and disconnect power to the machine. The foot brake safety feature is not working correctly. This safety feature must work properly before proceeding with regular operations. Call Tech Support for help.
17. Move the spindle lever to the center position to reset the internal spindle switches, then press the stop button in.
18. Use a 5mm hex wrench to remove the three cap screws that secure the side door, then open the door approximately 1".
19. Stay clear of the door, reset the stop button, then attempt to start spindle rotation.
 - If the spindle does not start, the side door safety switch is working correctly.
 - If the spindle does start (with the side door open), immediately press the stop button and disconnect the machine from power. The side door safety feature is not working correctly. This safety feature must work properly before proceeding with regular operations. Call Tech Support for help.
20. Close the side door and secure it with the three cap screws.

After successfully completing the **Test Run** procedure, proceed to **Spindle Break-In**.



Spindle Break-In

NOTICE

Successfully complete all of the spindle break-in steps to avoid rapid deterioration of the spindle bearings and components.

To break-in the spindle bearings:

1. Successfully complete the **Test Run** procedure beginning on **Page 16**.
2. DISCONNECT LATHE FROM POWER!
3. Make sure the carriage is disengaged from the leadscrew and feed rod (refer to **Step 6** on **Page 17** for instructions).
4. Set the lathe to a spindle speed of 60 RPM (refer to **Setting Spindle Speed** on **Page 38** for detailed instructions).
5. Connect the machine to power and move the spindle lever down to start the spindle rotating counterclockwise, then let the lathe run for 20 minutes.
6. Move the spindle lever to the center position, wait for the spindle to come to a complete stop, then move the spindle lever up to start the spindle rotating in the opposite direction (clockwise). Let the lathe run for another 20 minutes.
7. Repeat **Steps 2–6** for the spindle speeds of 160, 650, and 1800 RPM.

8. Turn the lathe **OFF** and allow the spindle to come to a complete stop, then disconnect the lathe from power.

9. Place your hand on the spindle to test its operational temperature.

—If the spindle is hotter than you can comfortably leave your hand on, the spindle bearing preload may need to be adjusted. Refer to the **Spindle Bearing Preload** section on **Page 62** for detailed instructions.

—If the spindle temperature feels warm, the **Spindle Break-In** procedure is complete and your lathe is ready for operation.

Recommended Adjustments

For your convenience, the adjustments listed below have been performed at the factory.

However, because of the many variables involved with shipping, we recommend that you at least verify the following adjustments to ensure the best possible results from your new machine.

Step-by-step instructions for these adjustments can be found on the pages referenced below.

Factory adjustments that should be verified:

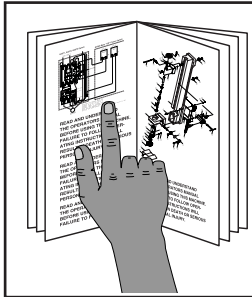
- Tailstock alignment (**Page 33**).
- Cross slide backlash adjustment (**Page 58**).
- Gib adjustments (**Page 58**).

NOTICE

After the first 16 hours of use, the V-belts will stretch and seat into the pulley grooves. The V-belts must be properly re-tensioned after this period to avoid severely reducing their useful life (refer to the *Tensioning/Replacing V-Belts* section on **Page 53** for detailed instructions).



SECTION 4: OPERATIONS

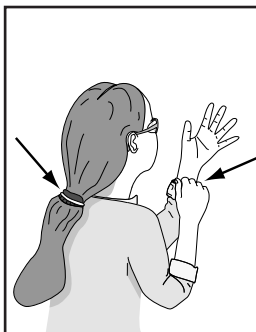
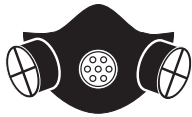


!WARNING

To reduce the risk of serious injury when using this machine, read and understand this entire manual before beginning any operations.

!WARNING

Damage to your eyes and lungs could result from using this machine without proper protective gear. Always wear safety glasses and a respirator when operating this machine.



!WARNING

Loose hair, clothing, or jewelry could get caught in machinery and cause serious personal injury. Keep these items away from moving parts at all times to reduce this risk.

!CAUTION

No list of safety guidelines can be complete. Every shop environment is different. Always consider safety first, as it applies to your individual working conditions. Use this and other machinery with caution and respect. Failure to do so could result in serious personal injury, damage to equipment, or poor work results.

Operation Overview

This overview gives you the basic process that happens during an operation with this machine. Familiarize yourself with this process to better understand the remaining parts of the **Operation** section.

There are many variations of the below typical operation that involve additional or different steps, depending on the selected task.

To complete a typical operation, the operator does the following:

1. Securely mounts the workpiece in one of the chucks or on the faceplate.
2. Mounts the tooling and correctly aligns it with the workpiece.
3. Sets the correct spindle speed for the operation.
4. If using power feed, selects the proper feed rate for the operation.
5. Checks for safe clearances, then begins the spindle rotation.
6. Using either the carriage handwheels or power feed, moves the tooling into the workpiece.
7. When finished cutting, turns the lathe **OFF** and removes the workpiece.

NOTICE

If you have never used this type of machine or equipment before, **WE STRONGLY RECOMMEND** that you read books, trade magazines, or get formal training before beginning any projects. Regardless of the content in this section, Grizzly Industrial will not be held liable for accidents caused by lack of training.



Basic Controls

Use **Figures 17–21** and the following descriptions to become familiar with the basic controls of your lathe.

Main Power Switch

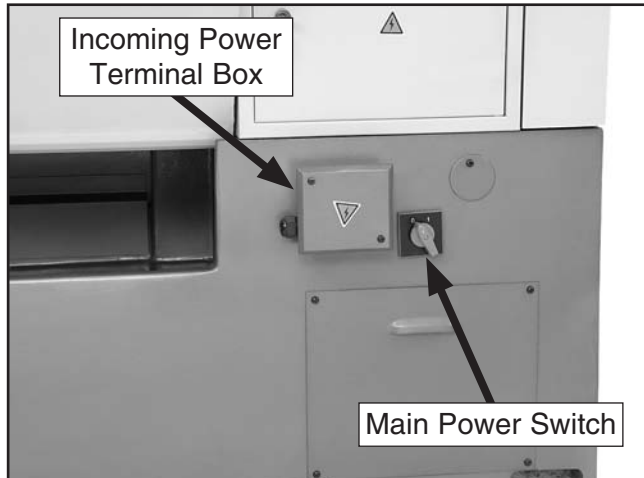


Figure 17. Main power switch.

The main power switch is located on the left rear of the lathe, next to the incoming power terminal box. Turn the switch to "I" to allow the power to flow to the machine.

⚠️ WARNING

Like all machinery there is potential danger when operating this machine. Accidents are frequently caused by lack of familiarity or failure to pay attention. Use this machine with respect and caution to decrease the risk of operator injury. If normal safety precautions are overlooked or ignored, serious personal injury may occur.

Headstock Controls

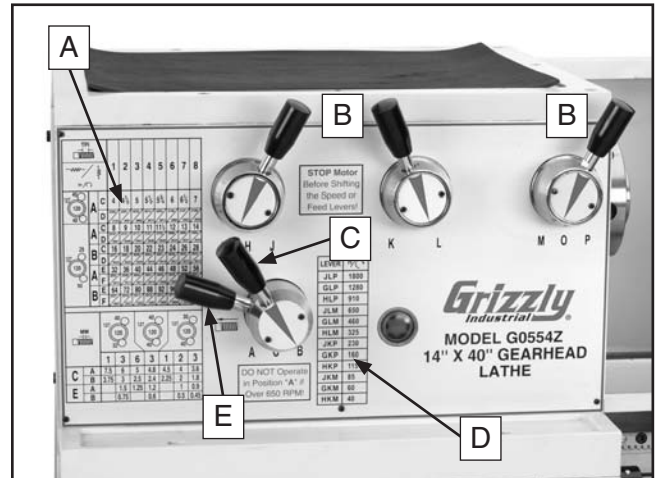


Figure 18. Headstock controls.

- A. Feed Rate & Thread Charts:** Show the configurations of the change gears, levers, and knobs needed to set the rotational speed of the leadscrew or feed rod.
- B. Spindle Speed Levers:** Configure the internal headstock gearing for the various spindle speeds.
- C. A–B Feed Rate Lever:** One of the three controls for setting the feed rate (the remaining controls are on the gearbox).
- D. Spindle Speed Configuration Chart:** Displays the spindle speed lever settings for the various spindle speeds.
- E. Feed Direction Lever:** Controls feed rod or leadscrew rotation direction.



Gearbox Controls

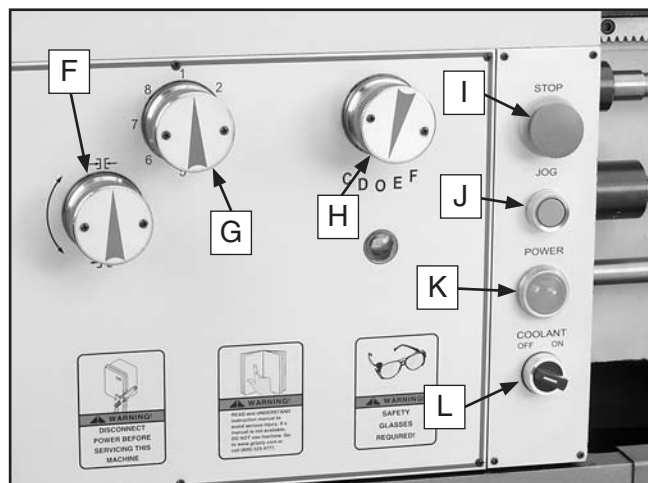


Figure 19. Gearbox controls.

- F. Feed Lock Knob:** Engages/disengages the power feed and the feed rate knobs.
- G. Numeric Feed Rate Knob:** One of three controls for setting the feed rate.
- H. C-F Feed Rate Knob:** One of three controls for setting the feed rate.
- I. STOP Button:** When pushed, turns the spindle motor and coolant pump **OFF**. To reset this button, twist it clockwise until it pops out.
- J. Jog Button:** When pushed, starts counter-clockwise spindle rotation.
- K. Power Lamp:** Lights when the machine is connect to power and the main power switch is turned **ON**.
- L. Coolant Switch:** Turns the coolant pump **ON/OFF**.

NOTICE

Running the coolant pump without adequate coolant in the tank may permanently damage the coolant pump motor. This is considered abuse and is not covered by the warranty.

Carriage Controls & Components

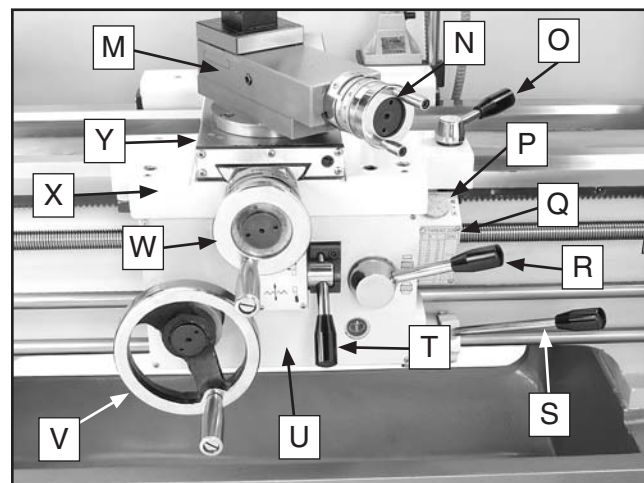


Figure 20. Carriage controls.

- M. Compound Slide:** Moves in-and-out across the spindle center line. The compound slide is adjustable for any angle within its range, which is adjusted by using the hex nuts and angle scale on the base of the slide.
- N. Compound Handwheel:** Moves the compound rest in increments of 0.001" or 0.02mm and is used to control the position of the cutting tool relative to the workpiece. Turning the handwheel clockwise moves the slide toward the workpiece. The graduated dial can be adjusted by holding the handwheel with one hand and turning the dial with the other.
- O. Carriage Lock:** Secures the carriage in place for greater rigidity and accuracy when cutting.
- P. Thread Dial:** Shows when to engage the half-nut during threading operations.
- Q. Thread Dial Chart:** Indicates on which thread dial reading to engage the half-nut for specific inch thread pitches.
- R. Half-Nut Lever:** Engages the half-nut for longitudinal power feed and threading operations.
- S. Spindle Lever:** Starts, stops, and reverses direction of spindle rotation.
- T. Power Feed Lever:** Engages the power feed for longitudinal or cross travel.



- U. **Apron.** Houses the carriage gearing and internal components.
- V. **Longitudinal Handwheel:** Moves the carriage from side-to-side along the spindle center line in increments of 0.005" or 0.10mm.
- W. **Cross Slide Handwheel:** Moves the cross slide toward and away from the work. The graduated dial is adjustable using the same method as the dial on the cross slide and is marked in increments of 0.001" or 0.02mm. The cross slide dial is a "direct read" dial, which means that the distance it indicates is the actual amount removed from the diameter of the workpiece, even though the cross slide moves only $\frac{1}{2}$ that distance.

Note: *Direct read means that the distance the handwheel dial indicates is what is removed from the diameter of the workpiece. The cross slide only moves $\frac{1}{2}$ that distance.*

- X. **Saddle:** Rides on top of the bedways and supports the cross slide and apron.
- Y. **Cross Slide:** Moves back-and-forth across the spindle center line and supports the compound rest.

Tailstock Controls

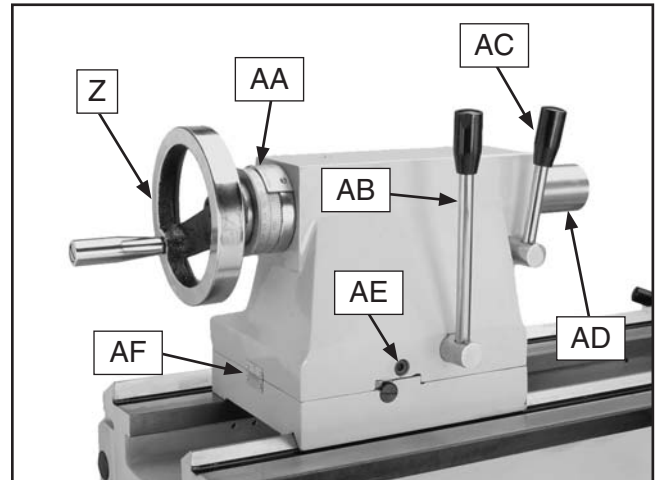


Figure 21. Tailstock controls.

- Z. **Quill Handwheel:** Moves the quill toward or away from the spindle.
- AA. **Graduated Dial:** Indicates quill movement in increments of 0.001" or 0.02mm.
- AB. **Tailstock Lock Lever:** Secures the tailstock in place along the bedway.
- AC. **Quill Lock:** Locks the quill in position.
- AD. **Quill:** Moves toward and away from the spindle and holds centers and tooling.
- AE. **Tailstock Offset Screw:** Adjusts and secures the tailstock offset (1 of 2).
- AF. **Offset Scale:** Indicates the distance of tailstock offset from the spindle center line.



Foot Brake

The Model G0554Z lathe comes equipped with a foot brake (see **Figure 22**). The foot brake is intended to be used primarily as a time saving tool. The best method for using the foot brake is to turn the spindle **OFF** with the spindle lever, then apply even and moderate pressure to the foot brake to slow the spindle to a stop.

Stepping on the foot brake while the spindle is **ON** will kill the power to the spindle motor and will bring the spindle to a stop. Stopping the spindle in this manner is harder on the machine and should be reserved for panic situations.

When the foot brake is used, the power lamp shows that the lathe is energized, but the circuit to the spindle motor is interrupted. Once stopped, the spindle lever needs to be returned to the center position to reset the spindle switches.

Note: Do not confuse the foot brake function with the emergency stop button. The emergency stop button cuts power to both the spindle motor and coolant pump, and must be reset to restore power to the lathe.

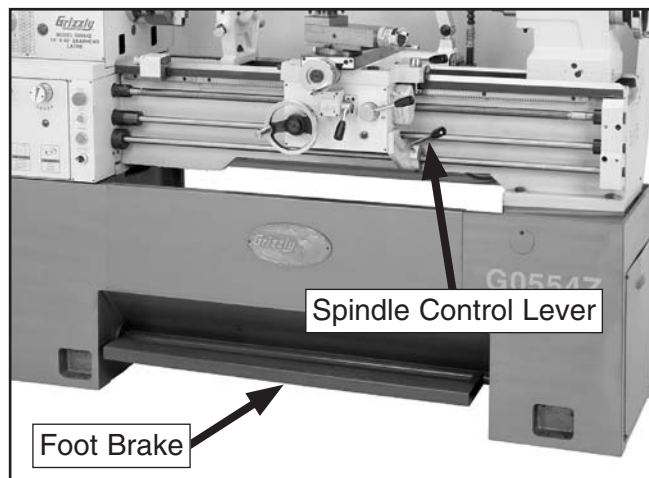
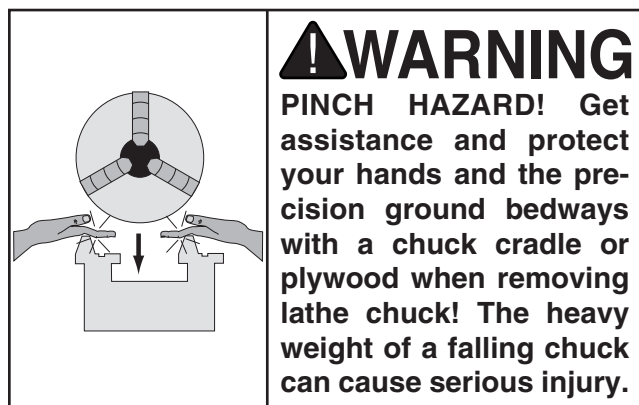


Figure 22. Foot brake and spindle control lever.

Chuck & Faceplate Mounting



The chucks and faceplate provided with your lathe are mounted on and removed from the spindle in the same manner.

Tools Needed for Removing/Installing	Qty
Spindle Lock Key.....	1
Dead Blow Hammer	1
Chuck Cradle or Plywood $\frac{3}{4}$ "	1

Removing Chuck or Faceplate

1. DISCONNECT LATHE FROM POWER!
2. Lay a chuck cradle (see **Figure 23**) or a protective layer of plywood under the chuck or faceplate and over the bedway to protect the precision ground surfaces from damage and to prevent fingers from being pinched.

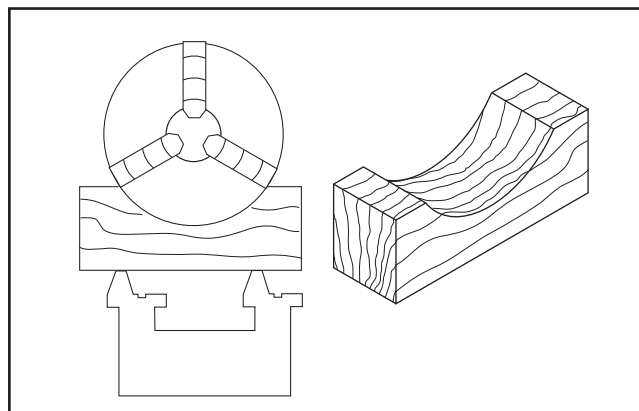


Figure 23. Chuck cradle.



3. One at a time, use the spindle lock key to turn the three cam-locks counterclockwise until the marks on the cam-locks align with the single marks on the spindle nose, as shown in **Figure 24**. As you turn the cam-locks, they will rise slightly up from the spindle nose.

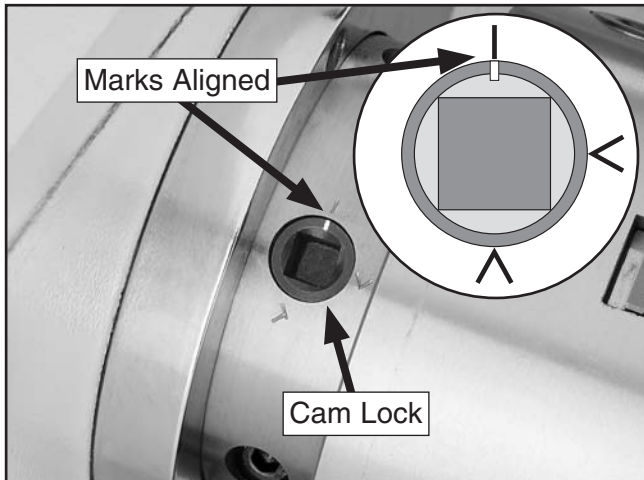


Figure 24. Cam-lock loosened with the mark aligned with single mark on the spindle nose.

4. Use a dead-blow hammer or a wood block to lightly tap around the circumference of the chuck or faceplate to break it free from the spindle taper and cam-lock sockets.
5. With a rocking motion, carefully remove the chuck or faceplate from the spindle nose, as shown in **Figure 25**.

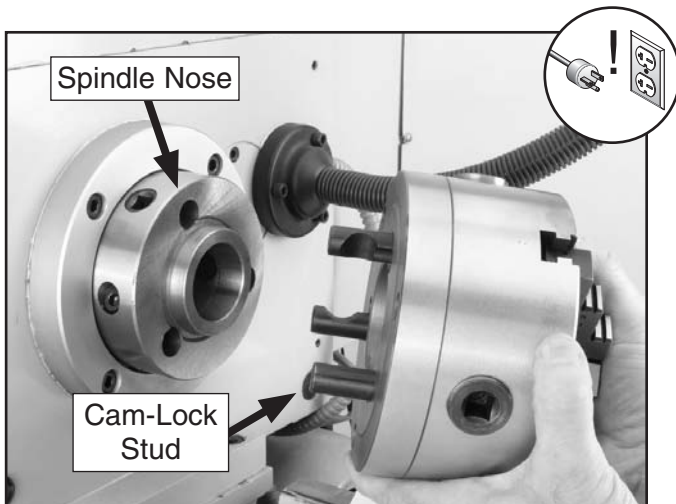


Figure 25. Example of removing the 3-jaw chuck from the spindle nose.

Mounting Chuck or Faceplate

1. DISCONNECT LATHE FROM POWER!
2. Lay a chuck cradle or a protective layer of plywood under the chuck or faceplate and over the bedway to protect the precision ground surfaces from damage and to prevent fingers from being pinched.
3. Clean away debris and oily substances from the mating surfaces of the spindle and chuck or faceplate.
4. Position the chuck or faceplate in front of the spindle nose with the cam-lock studs aligned with the sockets, then carefully insert the chuck or faceplate onto the spindle (see **Figure 25**).
5. Slowly tighten each cam-lock clockwise until you feel it engage the cam-lock stud, then continue to turn the cam-lock until you cannot turn it any further.

As you tighten the cam-locks, the chuck or faceplate will snug up onto the spindle nose. When fully tightened, the cam-lock mark will fall between the two "V" marks on the spindle nose, as shown in **Figure 26**.

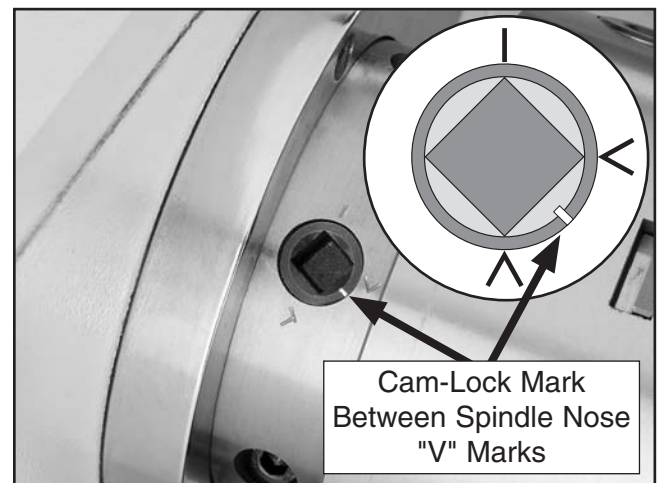


Figure 26. Cam-lock fully tightened with the mark aligned between the "V" marks.

Note: To make sure that the chuck or faceplate is perpendicularly aligned with the spindle, use a test indicator mounted on the bedways to check for runout.



Installing Cam-Lock Studs

Tools Needed	Qty
Hex Wrench 5mm.....	1

To install cam-lock studs into a chuck or faceplate:

1. Lay the chuck or faceplate upside down on protective, flat surface.
2. If installed, remove the three locking cap screws adjacent to the cam-lock mounting holes (see **Figure 27**).

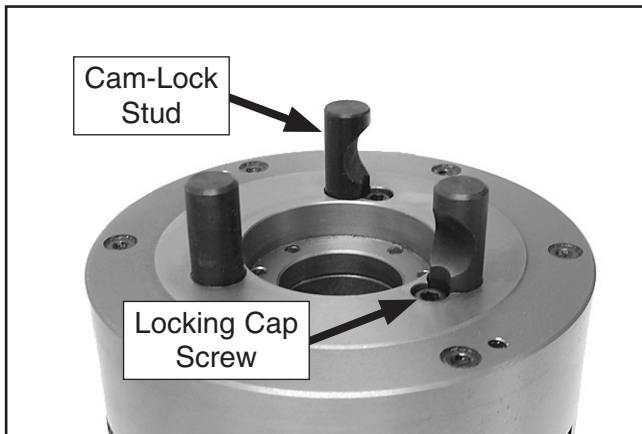


Figure 27. Cam-lock stud and locking cap screw.

3. Thread the cam-lock studs into the chuck or faceplate until the depth mark shown in **Figure 28** is even with the surface of the chuck or faceplate and the curved indent on the side of the stud faces the locking cap screw hole.



Figure 28. Cam-lock stud depth mark.

4. Install and tighten the locking cap screws.
5. Make sure that the cam-lock studs can rock back-and-forth against the head of the locking cap screw.

—If the cam-lock studs cannot rock back-and-forth against the locking cap screw, repeat **Steps 2–5** until they do.

3-Jaw Chuck

Your lathe is shipped with a 6" 3-jaw, direct mount scroll chuck and has three cam-lock studs that hold the chuck tight to the spindle nose. The jaws are hardened steel that self-center the workpiece within 0.002"–0.003" and are reversible for machining larger workpieces.

Reversing Jaws

Tools Needed	Qty
Hex Wrench 8mm.....	1

To reverse the jaw:

1. DISCONNECT LATHE FROM POWER!
2. Remove the two cap screws that secure each top jaw, as shown in **Figure 29**, then remove the top jaw.



Figure 29. Loosening the jaw cap screws.



3. Clean away debris and oily substances from the mating surfaces of the jaws.
4. Flip each jaw 180°, then re-install the cap screws to secure top jaws, as shown in **Figure 30**.

3. Use the chuck key to open the jaws so that the workpiece lays flat against the chuck face, jaw steps, or fits into the spindle hole. See **Figure 31** for examples of workpiece holding options for the 3-jaw chuck.



Figure 30. Reversing jaws.

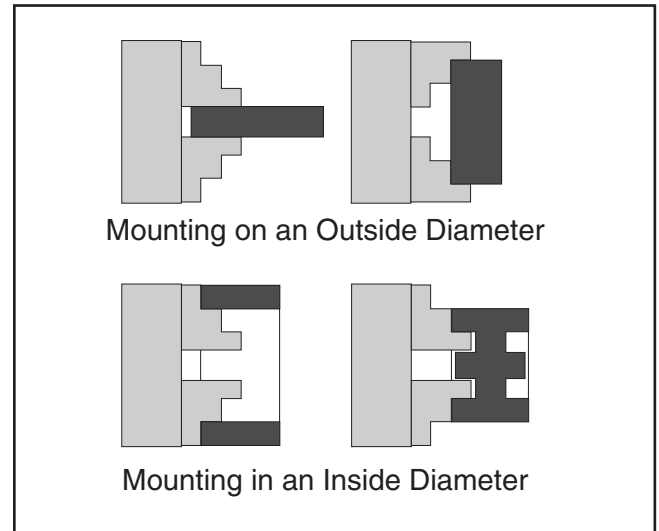
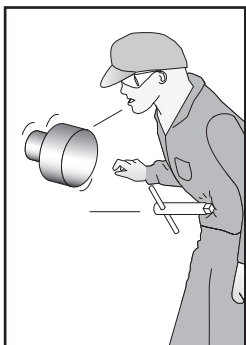


Figure 31. Examples of workpiece mounted in the 3-jaw chuck.



! WARNING

Securely mount your workpiece and remove the chuck key! Thrown objects from a lathe can cause serious injury or death to the operator and to bystanders many feet away.

Mounting Workpiece

Tools Needed	Qty
3-Jaw Chuck Key	1
Plywood 3/4" (Bedway)	1

To mount a workpiece onto the 3-jaw chuck:

1. DISCONNECT LATHE FROM POWER!
2. Place the piece of plywood on the bedway below the chuck to protect it.

4. Use the chuck key to tighten the jaws until they make contact with the workpiece.
5. Turn the chuck by hand to make sure the workpiece has even contact with all three jaws and the workpiece is not off-center.

—If the workpiece is not evenly held by all three jaws or is off-center, loosen the jaws and repeat **Steps 3–4**.

—If the workpiece is seated correctly onto the chuck, fully tighten the jaws.



4-Jaw Chuck

⚠️ WARNING

Always use a low spindle speed when machining non-concentric workpieces or for off-center turning to avoid ejecting the workpiece from the mounting device at a high rate of speed. Failure to heed this warning could lead to serious personal injury, death or property damage.

The 8" 4-jaw, direct mount, independent chuck included with your lathe has hardened steel jaws that are independently adjusted and can be independently reversed, which allows for a wide range of mounting versatility for non-concentric workpieces.

Mounting Workpiece

Tools Needed	Qty
4-jaw Chuck Key	1
Plywood $\frac{3}{4}$ " (Bedway)	1

To mount a workpiece onto the 4-jaw chuck:

1. DISCONNECT LATHE FROM POWER!
2. Lay a piece of plywood on the bedway under the chuck to protect it.
3. Use the chuck key to open each jaw so the workpiece will lay flat against the chuck face or jaw steps.
4. With assistance or a supporting device, mount the workpiece centered on the chuck, then turn each jaw until it makes contact with the workpiece.

5. Tighten each jaw in small increments. After you have adjusted the first jaw, continue tightening in an opposing sequence, as shown in **Figure 32**.

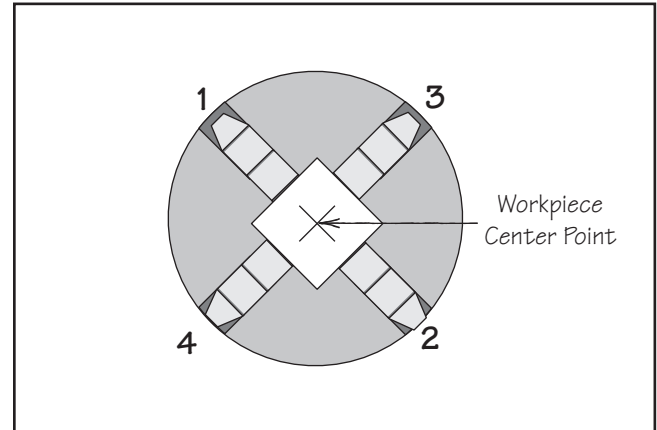


Figure 32. 4-jaw tightening sequence.

6. After the workpiece is held in place by the jaws, turn the chuck by hand and notice the workpiece alignment.

—If the workpiece is not correctly aligned for your operation as you turn the chuck, make fine adjustments by slightly loosening one jaw and tightening the opposing jaw until the workpiece is correctly aligned (see **Figure 33** for an example).

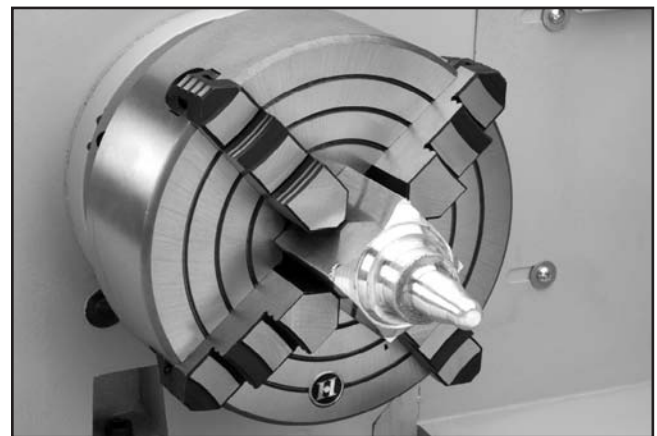


Figure 33. Non-concentric workpiece correctly mounted on the 4-jaw chuck.



Faceplate

The 12" faceplate included with your lathe is used when machining non-concentric workpieces or for off-center turning by clamping the workpiece to it. Refer to the **ACCESSORIES** section on **Page 48** for clamping options.

⚠️ WARNING

Use a minimum of three independent clamping devices to hold a non-concentric workpiece onto the faceplate. Failure to do so could cause the workpiece to be ejected from the lathe, which could result in serious personal injury or property damage.

Loading Workpiece

1. DISCONNECT LATHE FROM POWER!
2. Lay a piece of plywood on the bedway under the faceplate to protect it.

⚠️ WARNING

Always use a low spindle speed when machining non-concentric workpieces or for off-center turning to avoid ejecting the workpiece from the mounting device at a high rate of speed. Failure to heed this warning could lead to serious personal injury, death or property damage.

3. With assistance, place the workpiece onto the faceplate and clamp it in place with a minimum of three independent clamping devices (see **Figure 34** for an example).

Note: Take into account the rotation and cutting forces that will be applied to the workpiece when clamping it to the faceplate.

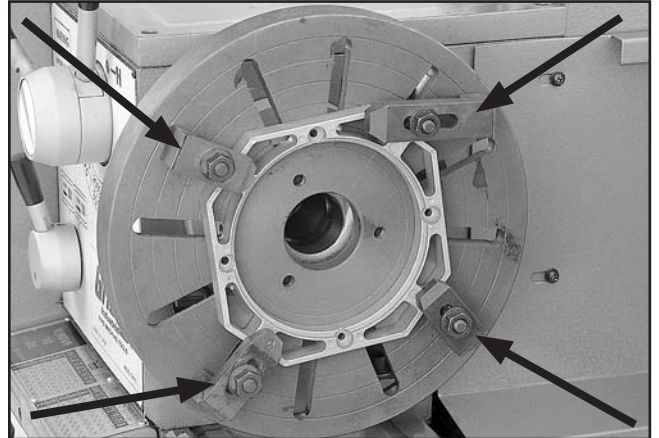


Figure 34. Workpiece clamped to the faceplate.



Centers

Your Model G0544Z lathe includes one HSS MT#3 dead center, one carbide-tipped dead center, and one MT#5–MT#3 tapered sleeve, as shown in **Figure 35**.

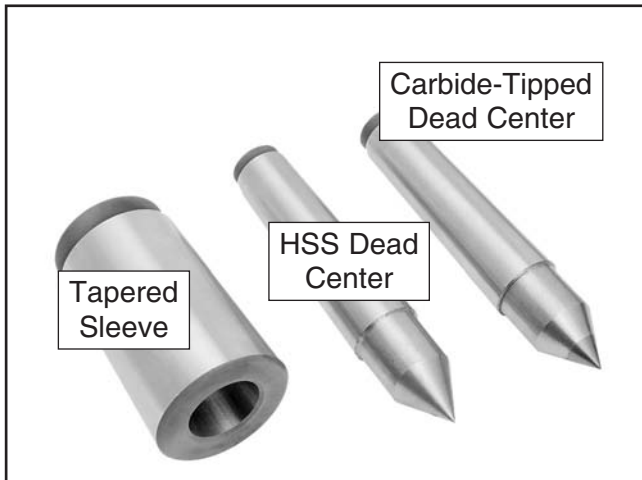


Figure 35. Tapered sleeve and dead centers.

The tapered sleeve is for mounting the HSS dead center in the spindle.

Dead Centers

A dead center is a one-piece center that does not rotate with the component it is mounted into and is used to support long, slender workpieces

Use the HSS dead center in the spindle where the workpiece does not rotate on the tip and does not generate friction.

The carbide-tipped dead center can better withstand the effects of friction and is used in the tailstock when the workpiece rotates on its tip. In this case, the tip of the center must be lubricated with an anti-sieze lubricant to avoid premature wear and maximize smooth operation. Also, keep the spindle speeds low to reduce the heat and wear from friction.

Live Centers

Although the dead center achieves a more accurate finished product, it requires low spindle speeds to avoid heat from friction damaging the center of workpiece. The live center has bearings that allow the center tip and the workpiece to rotate together, and can be installed in the spindle and the tailstock quill for higher speeds, but with a slight bit of accuracy loss. Refer to the **ACCESSORIES** section on **Page 48** for a live center option from Grizzly.

Using Dead Center in Spindle

When mounting the workpiece between centers, install a lathe dog on the spindle end of the workpiece and insert the tail of the dog into the chuck or faceplate to keep the workpiece and center rotating together during operation (see **Figure 36** for an example).

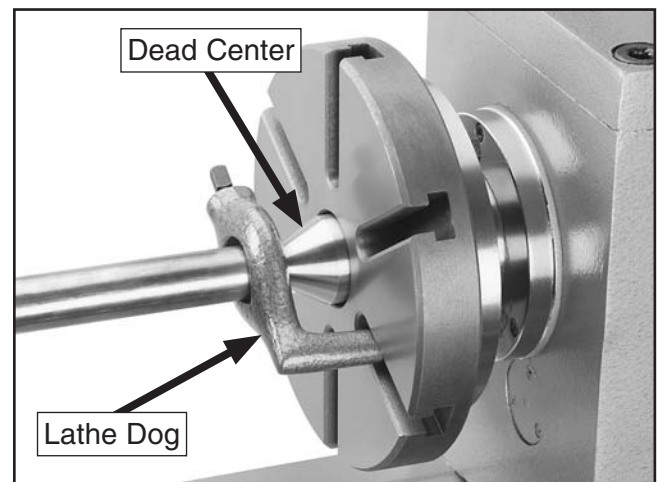


Figure 36. Example of using a dead center with a faceplate and lathe dog.

⚠ WARNING

When using a center in the spindle to mount a workpiece, the other end of the workpiece MUST be supported by a center installed in the tailstock quill to safely hold the workpiece in place during operation. Otherwise, the workpiece can be ejected from the lathe when the spindle rotates and could cause serious personal injury or property damage.



To mount a workpiece onto the spindle dead center:

1. DISCONNECT LATHE FROM POWER!
2. Thoroughly clean and dry the tapered mating surfaces of the spindle bore, tapered sleeve, and the HSS MT#3 dead center.
3. To protect these mating surfaces from rust and corrosion that could make removing them difficult, apply a thin coat of light machine oil to these surfaces, then use a clean shop rag to wipe the surfaces again. This will leave a minimal amount of oil on the mating surfaces.

Note: After applying the oil and wiping the surfaces, do not touch the mating surfaces with your hands or other objects, which could deposit moisture or debris.

4. Insert the center into the sleeve and the sleeve into the spindle bore through the chuck or faceplate.
5. Install a lathe dog on the workpiece, then mount the workpiece between the spindle and tailstock centers with the tail of the lathe dog inserted into the chuck or faceplate (see **Figure 36** for an example).
6. To remove the sleeve and center from the spindle, insert a piece of round bar stock or similar tool through the outboard end (on the left side of the headstock), then tap the sleeve loose.

Note: Hold onto the sleeve and center as you tap them loose to avoid dropping them and damaging the tip of the center or the bedways.

NOTICE

To avoid premature wear of the dead center or damage to the workpiece, always use lower spindle speeds and keep the tip of the dead center mounted in the tail stock well lubricated with an anti-sieze compound.

Using a Center in the Tailstock

When mounting long, slender workpieces that extend more than $2\frac{1}{2}$ times its diameter beyond the chuck jaws, use a center mounted in the tailstock to support it (see **Figure 37** for an example).

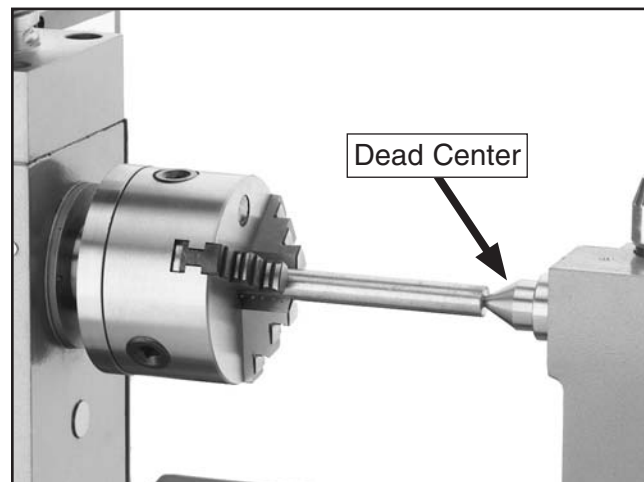


Figure 37. Example of using a dead center installed in the tailstock.

To mount a workpiece onto the tailstock dead center:

1. DISCONNECT LATHE FROM POWER!
2. Thoroughly clean and dry the tapered mating surfaces of the tailstock quill bore and the carbide-tipped dead center.
3. To protect these mating surfaces from rust and corrosion that could make removing them difficult, apply a thin coat of light machine oil to these surfaces, then use a clean shop rag to wipe the surfaces again. This will leave a minimal amount of oil on the mating surfaces.

Note: After applying the oil and wiping the surfaces, do not touch the mating surfaces with your hands or other objects, which could deposit moisture or debris.

4. Use the tailstock handwheel to feed the quill out from the casting at least 1", but for purposes of stability and accuracy no more than 2".



5. To prevent the workpiece slipping off the dead center tip, center drill the tailstock end of the workpiece with a tapered hole that matches the tip of the dead center.
6. Seat the center into the quill, position the tailstock so that the tip of the center presses against the workpiece enough to hold it in place, then tighten the tailstock lock lever.
7. Rotate the tailstock handwheel clockwise to feed the center farther into the workpiece until it is snug, then tighten the quill lock lever.

Note: Do not overly force the center into the workpiece with the handwheel—this will make removing the center very difficult and could damage it.

8. To remove the center from the quill, hold onto it with one hand, then rotate the tailstock handwheel counterclockwise to draw the quill back into the casting until the center releases.

Offsetting Tailstock

The tailstock can be positioned offset from the spindle center line to cut a taper. When the tailstock is moved toward the operator from the center line, the machined end of the workpiece nearest the tailstock will be smaller in diameter. Conversely, position the tailstock away from the operator from the center line to machine a taper near the spindle.

Note: To return the tailstock to the center position, perform the **Tailstock Alignment** procedure on the next page.

Tools Needed	Qty
Hex Wrench 6mm.....	1

To set up the tailstock to cut a shallow taper:

1. Alternately loosen and tighten the set screws on either side of the tailstock until the desired offset is indicated on the offset scale (see **Figure 38**).

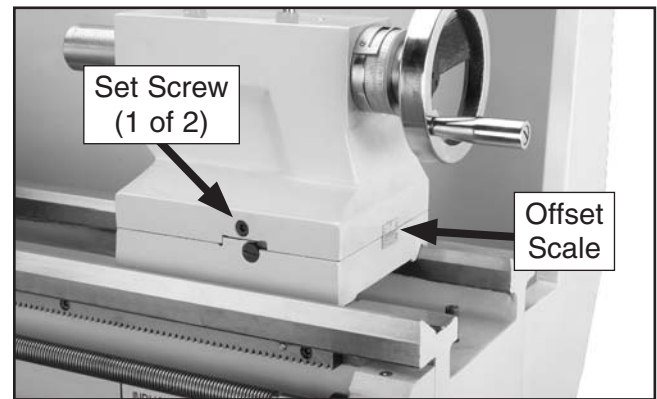


Figure 38. Tailstock offset controls.



Tailstock Alignment

The tailstock offset of your lathe was aligned with the spindle center line at the factory. We recommend that you take the time to ensure that the tailstock is aligned to your own desired tolerances, especially if you have changed the offset to cut shallow tapers.

To align the tailstock offset to the spindle center line:

1. Use a precision level to make sure the bedway is level from side-to-side and from front-to-back.

—If the bedway is not level, correct this condition before continuing with this procedure.
2. Obtain two pieces of steel round stock 2" in diameter and 6" long.
3. Center drill both ends of one piece of round stock, then set it aside for use in **Step 6**.
4. Use the other piece of round stock to make a dead center by turning a shoulder to make a shank, then flip the piece over in the chuck and turn a 60° point, as shown in **Figure 39**.

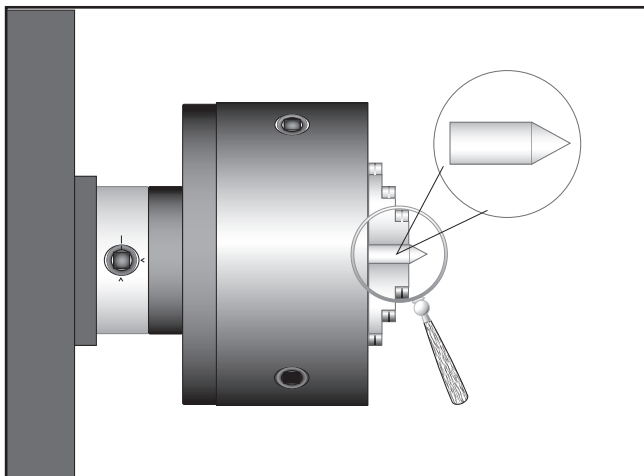


Figure 39. Turning a dead center.

Note: As long as this dead center remains in the chuck, the point of the center will remain true to the spindle center line. The point will have to be refinished whenever the center is removed and then returned to the chuck.

5. Install a center in the tailstock.
6. Attach a lathe dog to the piece of stock from **Step 3**, then mount it between the centers, as shown in **Figure 40**.



Figure 40. Round stock mounted between the centers.

7. Turn 0.010" off the diameter of the stock.
8. Mount a test or dial indicator so that the plunger is on the tailstock quill.

Note: If necessary in the following step, refer to **Cutting Shallow Tapers with the Tailstock** on **Page 32** for adjusting the tailstock offset.



9. Use a caliper to measure both ends of the workpiece.

—If the machined workpiece is *thicker* at the tailstock end, move the tailstock *toward* the operator $\frac{1}{2}$ the distance of the amount of taper (see **Figure 41**).

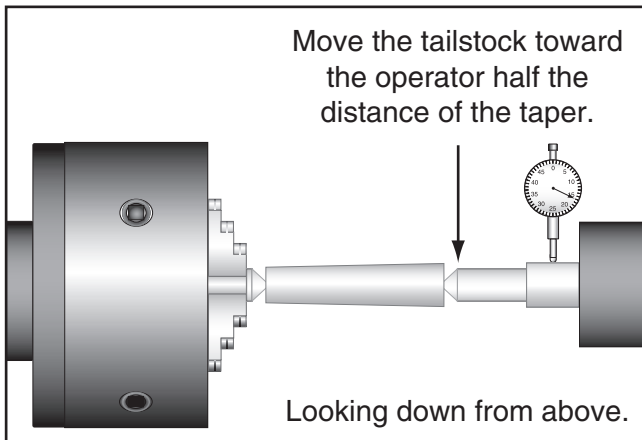


Figure 41. Adjust tailstock toward the operator.

—If the machined workpiece is *thinner* at the tailstock end, move the tailstock *away* from the operator $\frac{1}{2}$ the distance of the amount of taper (see **Figure 42**).

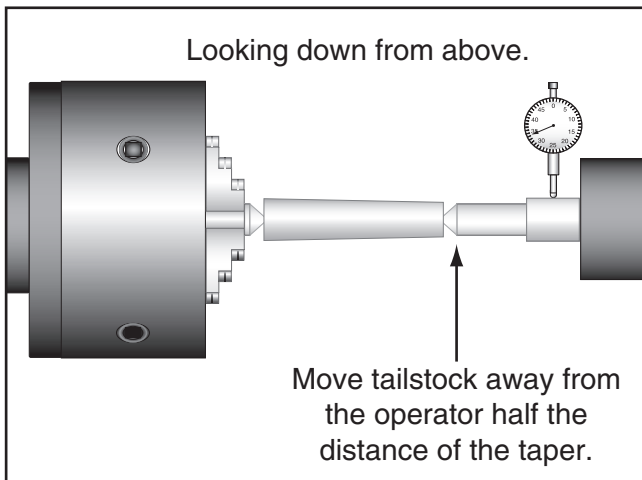


Figure 42. Adjust tailstock away from the operator.

Drilling with Tailstock

To install an MT#3 drilling tool into the tailstock:

1. With the tailstock locked in place, unlock the quill, then use the handwheel to extend it about 1".
2. Insert the drill chuck arbor or drill shank into the quill, as shown in **Figures 43–44**, then lightly tap the tool with a wood block until it is firmly seated.

Note: If the tapered shaft has a tang, align it horizontally with the indent in the back of the quill before inserting it.

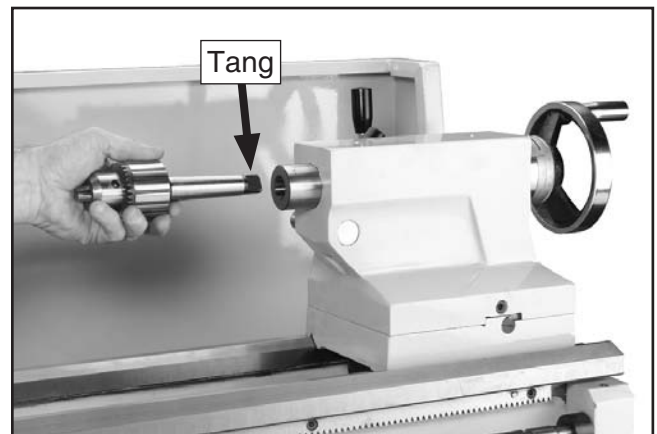


Figure 43. Inserting an MT#3 drill chuck into the tailstock quill.

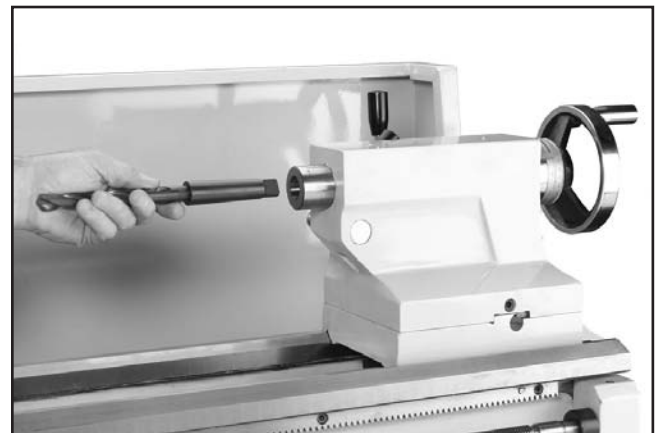


Figure 44. Inserting an MT#3 drill shank into the tailstock quill.



3. Unlock the tailstock and move the tip of the bit close to, but not touching, the workpiece.
4. Start spindle rotation, unlock the quill, then turn the quill handwheel clockwise to feed the bit into the workpiece.

To remove the drill chuck or drill shank, put on heavy gloves or use a shop rag to catch the tool, then rotate the quill handwheel counterclockwise until the tool is forced out of the quill.

Coolant System

The coolant system delivers coolant through a positional nozzle and is controlled by the control panel coolant pump switch and the valve lever near the base of the nozzle hose (see **Figure 45**).

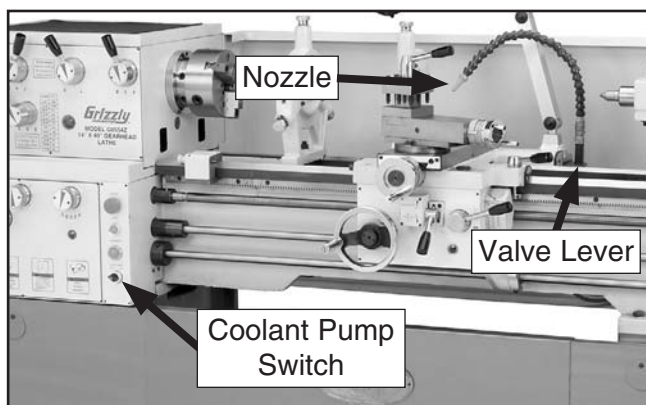


Figure 45. Coolant system controls and components.

NOTICE

Running the coolant pump without adequate coolant in the coolant reservoir may permanently damage the coolant system on your lathe. This action is considered abuse and is not covered by the warrant.

Always use high quality coolant in your coolant system and follow the manufacturer's instructions for diluting. Check the coolant regularly and promptly change it when it becomes overly dirty or rancid (see the **Checking/Cleaning Coolant System** subsection on **Page 54** for detailed instructions).

To use the coolant system on your lathe:

1. Make sure the coolant reservoir is properly serviced and fill with coolant.
2. Correctly position the coolant nozzle for your operation.
3. Use the control panel coolant pump switch to turn the coolant pump **ON**.
4. Adjust the flow of coolant by using the valve lever near the base of the nozzle hose.



Steady Rest

The steady rest serves as a support for long shafts (length to diameter ratio of 3:1 or greater). The steady rest can be placed anywhere along the length of the bedway.

To install/use the steady rest:

1. DISCONNECT LATHE FROM POWER!
2. Thoroughly clean the steady rest machined base, then place the steady rest on the lathe bedways so the triangular notch fits over the angled portion of the rear bedway.
3. Position the steady rest where required to properly support the workpiece, then tighten the lock nut at the base of the steady rest to secure it in place (see **Figure 46**).

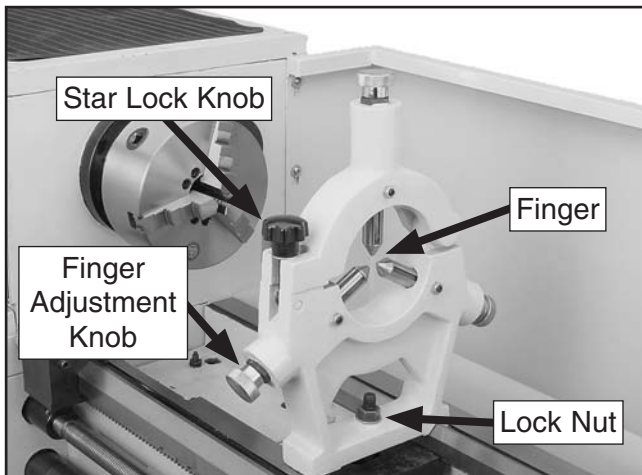


Figure 46. Steady rest adjustments.

4. Loosen the star lock knob and open the steady rest so the workpiece can rest on the bottom two fingers (see **Figure 47** for an example).

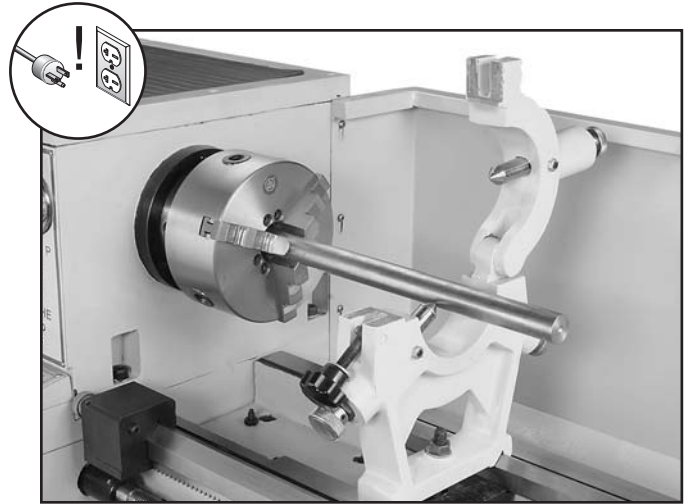


Figure 47. Workpiece mounted in the steady rest.

5. Close the steady rest so that the workpiece is inside the fingers, then tighten the star lock knob.
6. Use the finger adjustment knobs to just touch the fingers against the workpiece

Note: The fingers should properly support the workpiece, but allow it to freely rotate. Lubricate the finger tips with an anti-seize grease during operation.

After prolonged use, the fingers will show wear. Either mill or file the tips for a new contact surface.



Follow Rest

The follow rest in **Figure 48** is mounted on the saddle and follows the movement of the tool. It can be attached/removed with the two socket head cap screws located at the base of the follow rest.

The follow rest requires only two fingers as the cutting tool acts as the third. This rest is used on long, slender parts to prevent flexing of the workpiece from the pressure of the cutting tool. It should be used when the workpiece length to diameter ratio is 3:1 or greater.

The sliding fingers are set similar to those of the steady rest—free of play but not binding. Always lubricate them with an anti-seize grease during operation.

After prolonged use, the fingers will need to be milled or filed to cleanup the contact surface.



Figure 48. Follow rest attachment.

Carriage Stop

NOTICE

The carriage stop on the Model G0554Z lathe will **NOT** automatically stop the carriage or disengage the power feed! Failure to heed this notice could result in the carriage crashing and causing severe machine or property damage.

Use the carriage stop on the Model G0554Z as a guide to help judge when to stop the carriage movement.

Tools Needed	Qty
Hex Wrench 5mm.....	1

To adjust the carriage stop:

1. DISCONNECT LATHE FROM POWER!
2. Loosen the cap screws in the base of the stop, position it along the bedway where needed, then re-tighten the cap screws (see **Figure 49**).

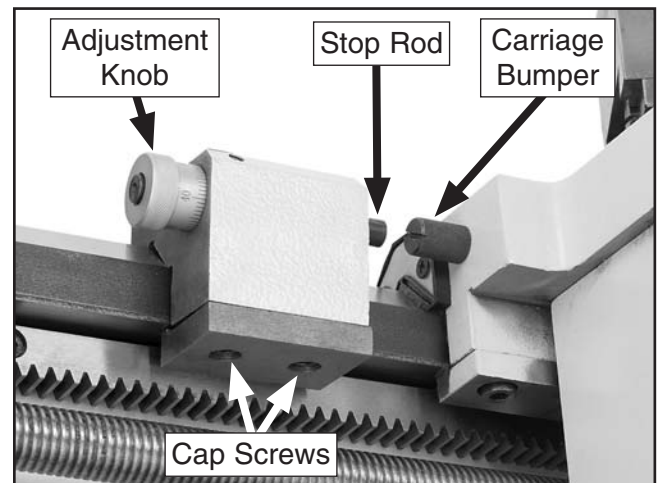


Figure 49. Carriage stop.

3. Use the adjustment knob on the stop to fine tune the position of the stop rod.



Four-Way Tool Post

The four-way tool post is mounted on top of the compound slide, and allows a maximum of four tools to be loaded simultaneously.

The four-way tool post allows for quick indexing to new tools. This is accomplished by loosening the top handle, rotating the tool post to the desired position, then re-tightening the handle to lock the tool into position.

Tools Needed	Qty
4-Way Tool Post Wrench.....	1

To load the tool post:

1. Choose the desired cutting tool.
2. Loosen the tool post bolts so that the cutting tool can fit underneath the tool post bolts.
3. If necessary, place shims underneath the cutting tool so that the cutting tip is properly aligned with the workpiece.
4. Use a minimum of two tool post bolts to secure the cutting tool and tighten firmly (see **Figure 50**).

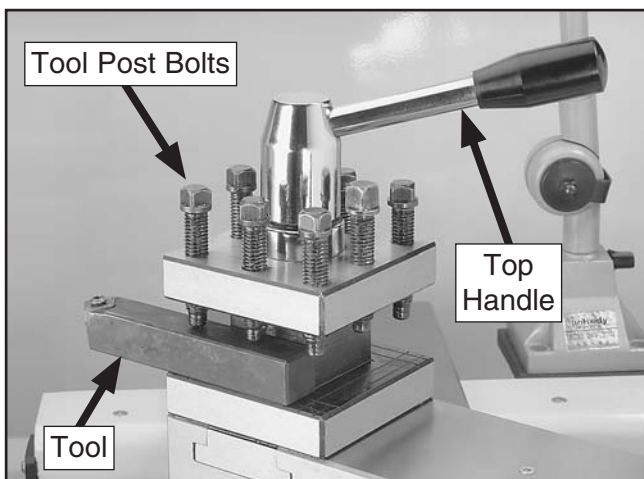


Figure 50. Tool holder and tool post.

5. Repeat **Steps 1-4** for the three remaining openings, as needed.

Spindle Speed

To set the correct spindle speed for your operation, you will need to: 1) Calculate the spindle speed (RPM) needed for your operation, and 2) configure the spindle speed levers for the calculated speed.

NOTICE

ALWAYS make sure the spindle is turned **OFF** and is at a complete stop before changing any gear configuration to prevent damage to the lathe gearing and voiding the warranty.

Calculating Spindle Speed

1. Use the table in **Figure 51** to determine the recommended cutting speed for the workpiece material.

Note: *Cutting speeds are expressed in SFM (surface feet per minute) that the workpiece moves against the cutter, which is different from the spindle speed (RPM).*

Recommended Cutting Speeds		
Work Material	Average Tool Speed (sfm)	
	<i>Rough Cuts</i>	<i>Finish Cuts</i>
Magnesium	400	800
Aluminum	350	700
Brass & Bronze	250	500
Copper	100	250
Cast Iron (Soft)	100	250
Cast Iron (Hard)	50	150
Mild Steel	100	250
Cast Steel	70	150
Alloy Steels (Hard)	50	150
Tool Steel	50	150
Stainless Steel	60	180
Titanium	90	200
Hi Manganese Steel	40	100

Note: *These values are based on HSS cutting tools. For carbide cutting tools, double the average speed. These values are a guideline only. Refer to the MACHINERY'S HANDBOOK for more detailed information.*

Figure 51. Cutting speed table.



- Determine the final diameter, in inches, for the cut you intend to make.

Note: For this step, you will need to average out the diameters or work with the finish diameter.

- Use the following formula to determine the correct spindle speed (RPM) for your operation:

$$\frac{\text{*Recommended Cutting Speed (FPM)} \times 12}{\text{Dia. of Cut (in inches)} \times 3.14} = \text{Spindle Speed (RPM)}$$

*Double if using carbide cutting tool

Example A:

You will finish cut a 1/2" diameter piece of cast steel stock, using an HSS cutting tool.

Step 1:

$$150 \text{ (SFM from chart)} \times 4 = 600$$

Step 2:

$$600 / .5" \text{ (Diameter of workpiece)} = 1200$$

Result:

The correct spindle speed is 1200 RPM.

Example B:

You will rough turn a 1" diameter piece of stainless steel, using a carbide cutting tool.

Step 1:

$$60 \text{ (SFM from chart)} \times 2 \text{ (for carbide tool)} = 120$$

Step 2:

$$120 \text{ (Calculated SFM)} \times 4 = 480$$

Step 3:

$$480 / 1" \text{ (Diameter of workpiece)} = 480 \text{ RPM}$$

Result:

The correct spindle speed is 480 RPM.

- Examine the chart in **Figure 52** or on the front of the headstock to determine the available spindle speed closest to your calculated speed.

Note: When the calculated spindle speed falls between the available speeds, use your best judgement as to which speed to use.

SPEEDS	
LEVERS	RPM
JLP	1800
GLP	1280
HLP	910
JLM	650
GLM	460
HLM	325
JKP	230
GKP	160
HKP	115
JKM	85
GKM	60
HKM	40

Figure 52. Spindle speed chart.

- Make sure the spindle is turned **OFF** and it has come to a complete stop.
- Configure the spindle speed levers as directed in the spindle speed chart. For instance, the calculated spindle speed in **Example A** is 1200 RPM, then the spindle speed levers are configured for the nearest speed of 1280 RPM, as shown in **Figure 53**

Note: You may need to rock the spindle back-and-forth by hand to get the gears to properly engage.

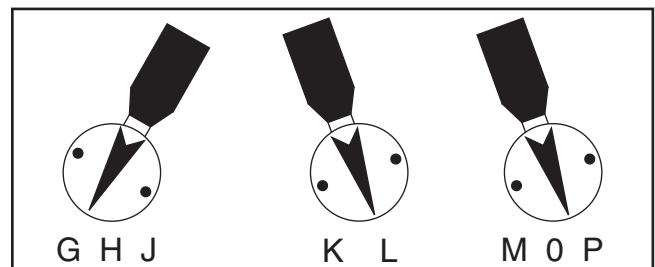


Figure 53. Spindle speed levers set for a speed of 1280 RPM.



Power Feed

Power feed on the Model G0554Z uses the machine to move the tooling rather than manual rotation of the handwheels. When the feed rod is engaged, the carriage or cross slide moves. Threading operations use powered rotation of the longitudinal leadscrew with the half-nut engaged.

The feed rate that these components travels is set with the feed rate lever/knobs and the quick change gears, but it is also dependent upon the spindle speed.

The correct feed rate and the related spindle speed is determined by the material to be machined, the type of tooling used, the depth of cut, and the desired finish. Refer to the table in **Figure 54** or the *Machinery's Handbook* for guidelines.

Note: This chart provides the cutting speed (SFM) for a given feed rate. You must use the cutting speed with the formula on **Page 39** to calculate the correct spindle speed (RPM) for the chosen feed rate.

Understanding the Feed Rate & Threading Charts

Examine the Model G0544Z feed rate and threading charts in **Figure 55** on **Page 41**. These charts show the various configurations of the feed rate lever/knobs and the quick change gears.

The top chart shows the settings for longitudinal and cross power feed and for inch threading. The bottom chart shows the settings for metric threading.

Understanding these charts is crucial to correctly setting the lathe controls for the required feed rate.

NOTICE

ALWAYS make sure the spindle is turned **OFF** and is at a complete stop before changing any gear configuration to prevent damage to the lathe gearing and voiding the warranty.

	Low Carbon Steel	High Carbon Annealed Steel	Normalized Allow Steel	Aluminum Alloys	Cast Iron	Bronze
Rough Cutting Speed SFM	90	50	45	200	70	100
Rough Feed Rate IPR	0.010" to 0.020"	0.010" to 0.020"	0.010" to 0.020"	0.015" to 0.030"	0.010" to 0.020"	0.010" to 0.020"
Finish Cutting Speed SFM	120	65	60	300	80	130
Finish Feed Rate IPR	0.003" to 0.005"	0.003" to 0.005"	0.003" to 0.005"	0.005" to 0.010"	0.003" to 0.010"	0.003" to 0.010"
SFM = Surface Feet per Minute IPR = Inches per Revolution						
Note: These values are for HSS cutting tools. For carbide cutting tools, double the cutting speed. These values still may need slight adjustment depending on the cutting tool rake and relief angles. Refer to the <i>MACHINERY'S HANDBOOK</i> for more detailed information.						

Figure 54. HSS cutting speed and feed rate table.



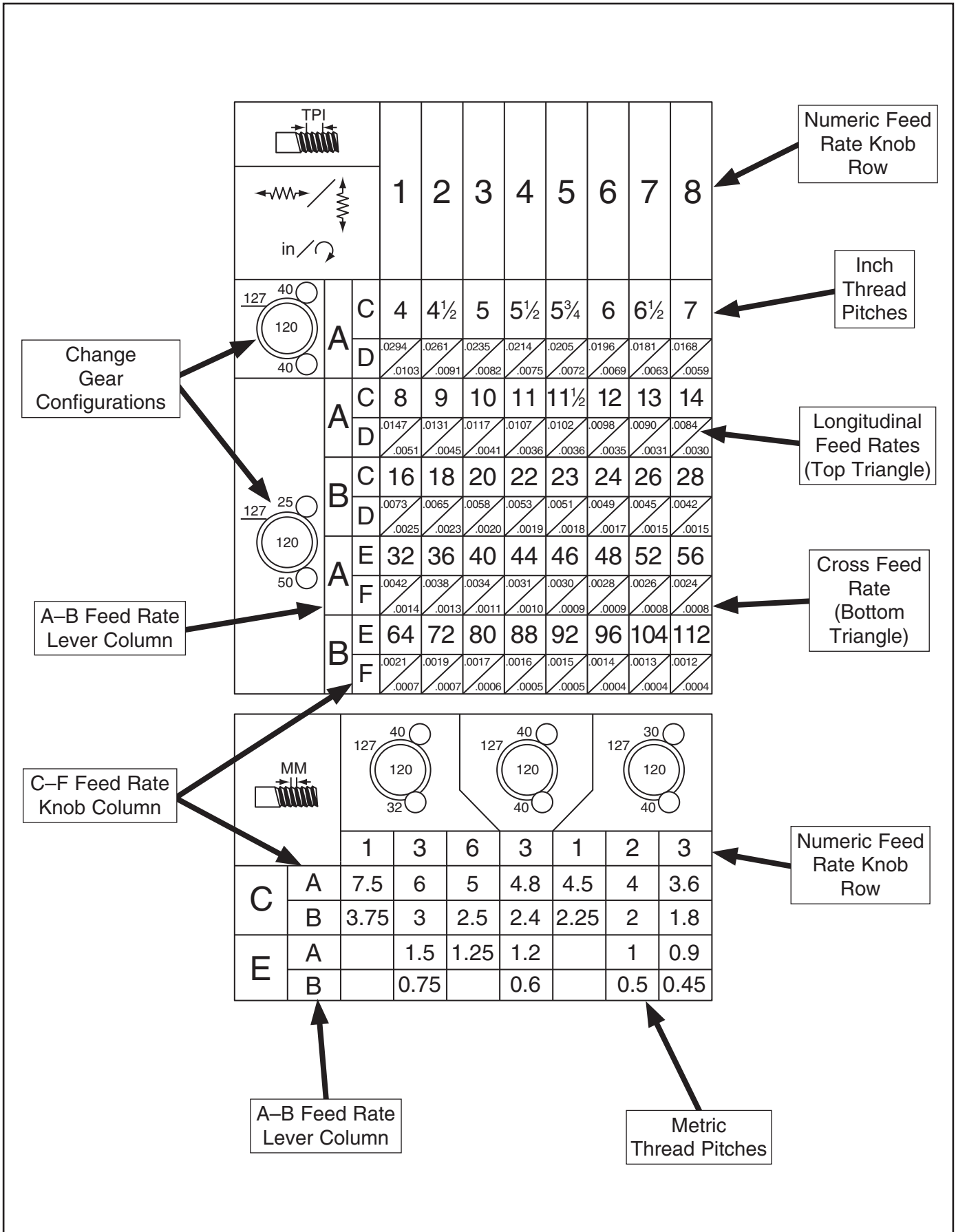


Figure 55. Model G0544Z feed rate and threading configuration charts.



Refer to the shaded areas of the illustration in **Figure 56** and the examples below to understand the layout of the top chart.

		1	2	3	4	5	6	7	8
	C	4	4½	5	5½	5¾	6	6½	7
	D	.0294 .0103	.0261 .0091	.0235 .0082	.0214 .0075	.0205 .0072	.0196 .0069	.0181 .0063	.0168 .0059
	C	8	9	10	11	11½	12	13	14
	D	.0147 .0051	.0131 .0045	.0117 .0041	.0107 .0036	.0102 .0036	.0098 .0035	.0090 .0031	.0084 .0030
	C	16	18	20	22	23	24	26	28
	D	.0073 .0025	.0065 .0023	.0058 .0020	.0053 .0019	.0051 .0018	.0049 .0017	.0045 .0015	.0042 .0015
	E	32	36	40	44	46	48	52	56
	F	.0042 .0014	.0038 .0013	.0034 .0011	.0031 .0010	.0030 .0009	.0028 .0009	.0026 .0008	.0024 .0008

Figure 56. Example selection from the top chart.

Example A:

You need the cross slide to move at a rate of 0.0082 IPR (inches per spindle revolution). To set the lathe up for this task, you will need to:

1. Set the spindle speed that is correct for this feed rate.
2. Find 0.0082 in the bottom triangles of the chart.

Note: *The IPR in the top triangles are for longitudinal movement of the carriage using the leadscrew, and in the bottom triangles for longitudinal or cross feed using the feed rod.*

3. Set the A–B feed rate lever on the headstock to **A**, as indicated on the left (refer to the **Setting Feed Rate Controls** on **Page 43** for detailed instructions).

Note: *You may need to rock the spindle, leadscrew, or feed rod back-and-forth by hand to get the gears to properly engage.*

4. Set the C-F feed rate knob on the gearbox to **D**, as indicated on the left.

5. Set the numeric feed rate knob on the gearbox to **3**, as indicated in the top row.
6. Set the quick change gears as indicated in the left column. Both 40T gears will mesh with the outer 127T gear (refer to **Quick Change Gears** on **Page 44** for detailed instructions).

Example B:

You will be cutting 11 TPI (threads per inch). To set up your lathe for this task, you will need to:

1. Find the row that contains the TPI of 11.
2. Set the A–B feed rate lever on the headstock to **A**, as indicated on the left.
3. Set the C-F feed rate knob on the gearbox to **C**, as indicated on the left.
4. Set the numeric feed rate knob on the gearbox to **4**, as indicated in the top row.
5. Set the quick change gears as indicated in the left column. The 25T and 50T gears will mesh with the outer 127T gear.

Note: *Refer to **Threading** on **Page 46** for further instructions on using your lathe to cut threads.*

The bottom chart for metric threading has a slightly different layout than the top chart. For instance, if you will be cutting a standard metric thread pitch of 1.25, you would do the following:

1. Set the A–B feed rate lever to **A**, as indicated on the left.
2. Set the C–F feed rate knob to **E**, as indicated on the left.
3. Set the numeric feed rate knob to **6**, as indicated in the upper row.
4. Set the quick change gears as indicated in the top row for that column.

Note: *For metric threading, the top quick change gear meshes with the outer 127T gear and the bottom gear meshes with the inner 120T gear.*



NOTICE

ALWAYS make sure the spindle is turned **OFF** and is at a complete stop before changing any gear configuration to prevent damage to the lathe gearing and voiding the warranty.

Setting Feed Rate Controls

The feed rate lever and knobs are used with the quick change gears to set the required feed rate.

To set the feed controls:

1. Turn the spindle **OFF** and wait for it to come to a complete stop before making any gear changes.
2. Rotate the feed lock knob on the gearbox counterclockwise to the open position, as shown in **Figure 57**. This will disengage the feed rod and longitudinal leadscrew so the gears can be changed.

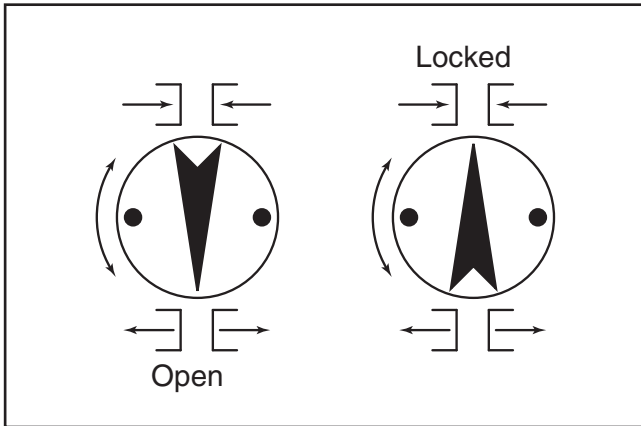


Figure 57. Power feed lock knob on the gearbox.

3. Examine the feed rate and threading charts illustrated in **Figure 55** on **Page 41** or on the front of the headstock to determine the configuration for the feed rate lever and knobs.

4. Set the feed rate lever and knobs as directed in the charts.

The example illustrated in **Figures 58–59** shows the setting for cutting 11 TPI threads—**A**, **4**, and **C**.

Note: You may need to rock the spindle, leadscrew, or feed rod back-and-forth by hand to get the gears to properly engage.

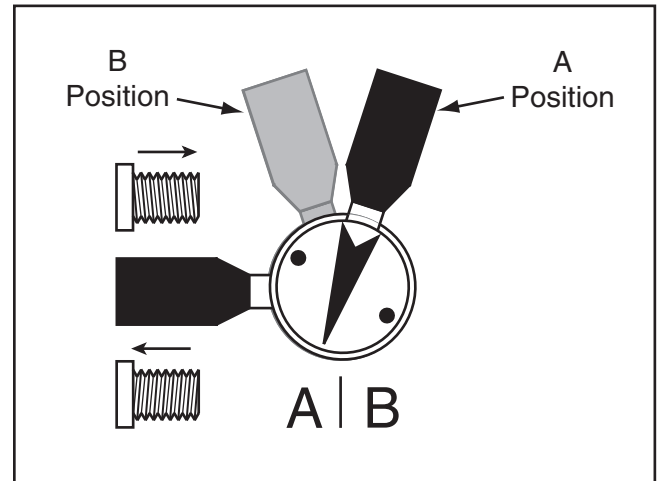


Figure 58. A–B feed rate lever set on **A**.

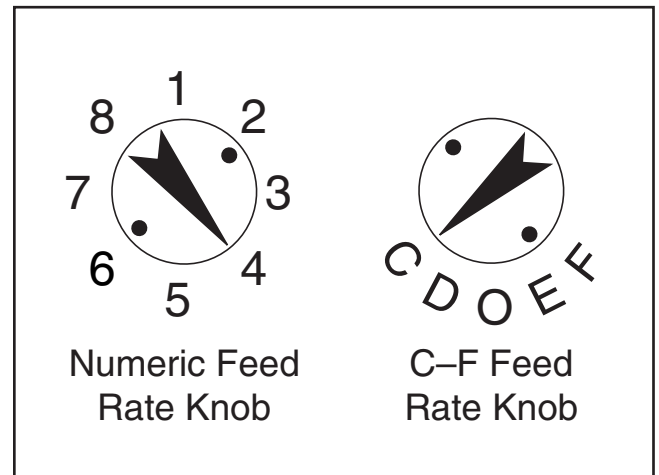


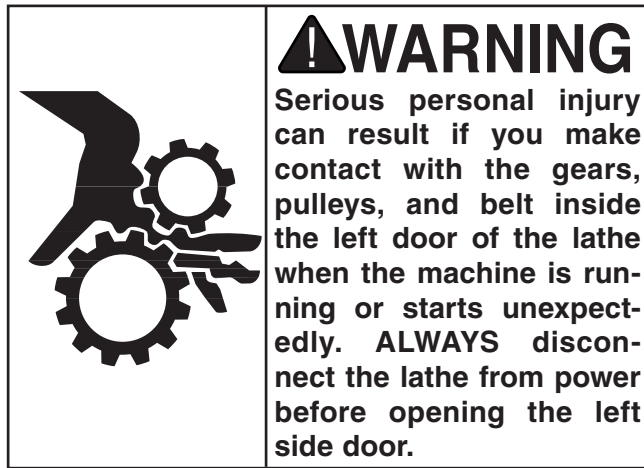
Figure 59. Feed rate knobs set on **4** and **C**.

5. Rotate the feed lock knob clockwise to the closed position to engage the leadscrew or feed rod.



Quick Change Gears

The quick change gears are used with the feed rate controls to set the required feed rate.



The Model G0554Z lathe ships with the 25T installed in the top position, the 120T/127T in the middle position, and the 50T installed in the bottom position, as shown in **Figure 60**. This configuration of gears will cover most feed rates and inch threading. The 30T, 32T, and two 40T gears are provided for additional feed rates and inch/metric threading.

Tools Needed

Qty

Hex Wrench 5mm.....	1
Wrench or Socket 16mm.....	1
Wrench or Socket 18mm.....	1

To configure the quick change gears:

1. DISCONNECT LATHE FROM POWER!
2. Engage the feed gears so that the change gears will not rotate in the following steps, then open the left side door.
3. Loosen the pivot hex nut and move the middle gears away from the bottom gear, then re-tighten the hex nut to keep the pivot assembly in place.
4. Loosen the hex nut that secures the middle gears and lower them away from the top gear.
5. To change either the top or bottom gears:
 - a. Remove the cap screw and flat washer that secures the gear, then the gear.

Note: Take care not to misplace the key from the gear shaft.

- b. Clean away debris and grime from the gear and apply a light coat of machine oil to protect it from rust before you store it.
- c. Repeat **Step b** for the replacement gear, then align it with the key and insert it on the gear shaft.

Note: When cutting metric threads, the bottom gear must mesh with the 120T gear of the middle gears. In order to do this, you need to install the bottom gear with the raised hub facing in toward the lathe.

- d. Re-install the flat washer and cap screw.

Note: DO NOT overtighten the cap screw. The cap screw merely holds the gear in place and overtightening it will make it harder to remove later and may restrict its rotation.

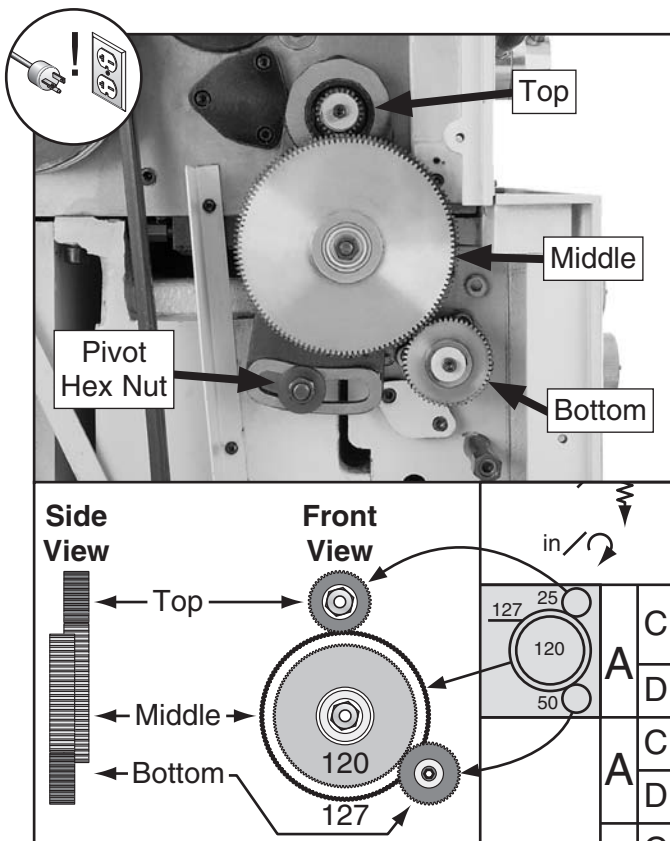


Figure 60. Quick change gears.



6. Move the middle gears up to mesh with the top gear, then tighten the hex nut to hold it in place.

Note: When meshing the middle gears, make sure there is a backlash of 0.001"–0.002" between the gears.

7. Move the pivot assembly to the right to mesh the middle gears with the bottom gear, then tighten the pivot hex nut.
8. Disengage the feed gearing and make sure the gears rotate with the correct amount of backlash, then close and secure the left side door.

NOTICE

Carriage feed rate is dependent upon the spindle speed—higher spindle speeds equal higher feed rates! Pay close attention to the movement of the carriage or cross slide and keep your hand poised over the power feed lever to disengage it when necessary. Failure to fully understand this could result in the lathe components crashing into each other causing severe damage to the lathe.

Engaging Power Feed

Carriage or cross slide powered movement for non-threading operations uses the feed rod. For threading, the longitudinal leadscrew and half-nut are used (refer to **Threading** on **Page 46** for detailed instructions).

To engage the power feed for non-threading operations:

1. Make sure the spindle is **OFF** and has come to a complete stop.

2. Use the power feed direction lever to select the rotation direction of the feed rod (see the illustration in **Figure 61**).

Note: The direction arrows shown above and below the power feed direction lever are only accurate when the spindle is rotating counterclockwise (toward the operator). As the spindle reverses, so will the direction of the power feed.

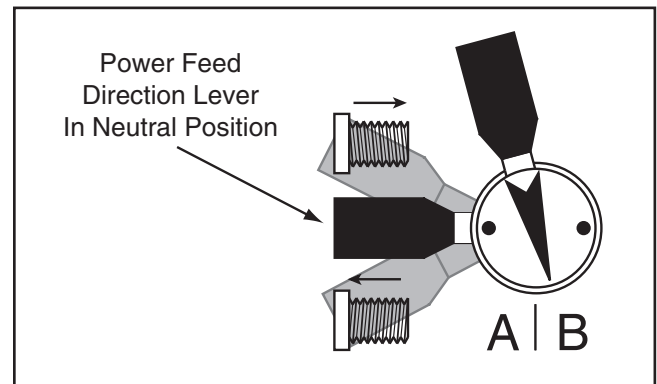


Figure 61. Power feed direction lever.

3. Use the power feed lever on the front of the apron to select powered movement of the carriage or the cross slide (see **Figure 62**).

—For longitudinal power feed of the carriage, pull the lever to the right and up.

—For power feed of the cross slide, push the lever to the left and down.

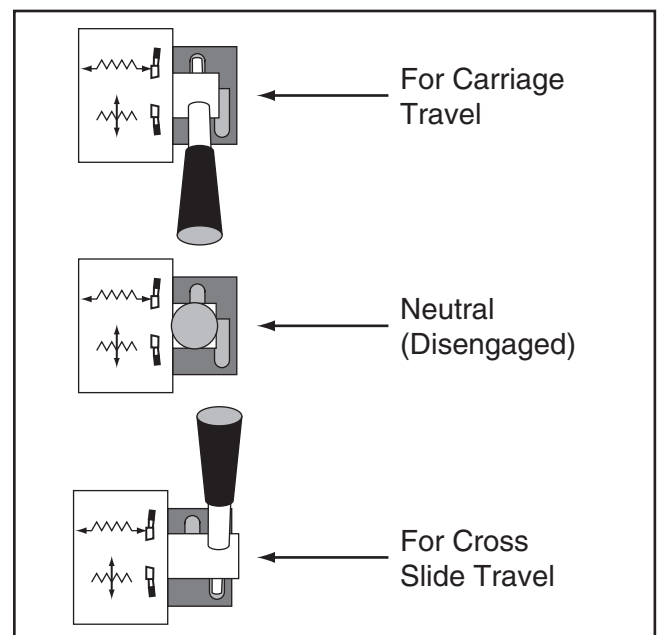


Figure 62. Power feed lever positions.



Threading Controls

The purpose of this subsection is to orient you with the controls used when threading and how to use the threading dial.

If you are unfamiliar with threading on a lathe, we strongly recommend that you read books, review industry trade magazines, or get formal training before beginning any threading projects.

Power Feed Lever

The power feed lever must be in the disengaged (horizontal) position for threading operations or the half-nut will not engage with the leadscrew (see **Figure 63**).

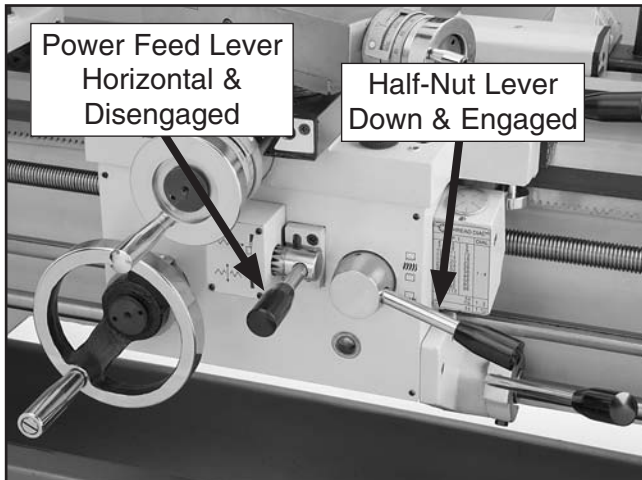


Figure 63. Carriage controls set up for threading.

Half-Nut Lever

The half-nut lever engages the carriage with the leadscrew which moves the cutting tool along the length of the workpiece (see **Figure 63**).

Thread Dial & Chart

The numbers on the thread dial are used with the thread dial chart to show when to engage the half-nut during inch threading. The thread dial gear must be engaged with the leadscrew for this to work. Loosen the cap screw that secures the thread dial, then pivot it so that the dial gear meshes with the leadscrew, as shown in **Figure 64**.

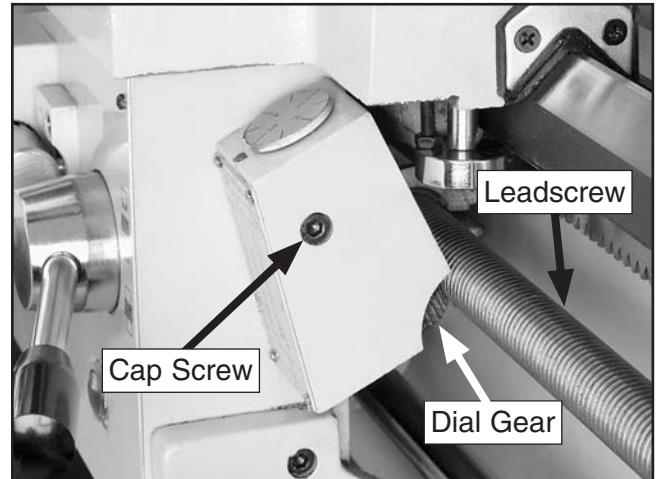


Figure 64. Thread dial engaged with the leadscrew.

NOTICE

DO NOT engage the half-nut when the spindle speed is over 325 RPM. Otherwise, damage to the half-nut, leadscrew, or carriage components may occur.



To use the thread dial chart (see **Figure 65**), find the TPI (threads per inch) on the chart that you want to cut, then reference the dial number to the right of it. The dial numbers indicate when to engage the half-nut for a specific thread pitch.

Note: *The thread dial chart can also be found on the front of the thread dial housing.*

THREAD DIAL			
T.P.I			DIAL
4	5	6	1-4
7	8	9	
10	11	12	
13	14	16	
18	20	22	
23	24	26	
28	32	36	
40	44	46	
48	52	56	
64	72	80	
88	92	96	
104	112		1 or 3
	4-1/2	5-1/2	
	6-1/2	1-1/2	
		5-3/4	1

Figure 65. Model G0554Z thread dial chart.

For example, to cut a TPI of 11, engage the half-nut when the thread dial points to any number between 1 and 4. To cut a TPI of 4½, engage the half-nut on 1 or 3.

To maintain accuracy and consistency, engage the half-nut on the same thread dial number for each pass. Failure to start on the same number each time may lead to cutting off the thread made in the previous pass.

Note: *The thread dial is not used when cutting metric threads. Leave the half-nut engaged from the beginning until the threads are complete.*



SECTION 5: ACCESSORIES

T10096—Taper Attachment for Model G0554Z

H5948—Collet Attachment for Model G0554Z

H8257—Primrose Armor Plate with Moly-D Machine and Way Oil 1 Quart

This superior machine and way lubricant prevents stick slip and chatter due to anti-friction capabilities resulting in greater precision machining capabilities. Provides the thinnest oil film possible while effectively providing needed lubrication and rust/corrosion protection. Adhesive/cohesive components are added for vertical surfaces. Resists squeeze out, running, dripping and non-gumming.



Figure 66. Primrose Armor Plate Lubricant.

G1075—52-PC. Clamping Kit

All the blocks, bolts, nuts, and hold-downs are case hardened. This clamping kit includes: 24 studs, 6 step block pairs, 6 T-nuts, 5 flange nuts, 4 coupling nuts, and 6 end hold-downs. The rack can be bolted to the wall or side of the machine for easy access. Features 1/2" T-Nuts & 3/8" bolts.

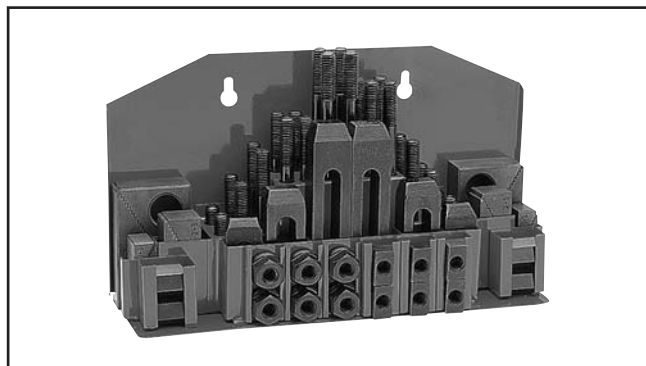


Figure 67. G1075 52-PC. Clamping Kit.

G5562—SLIPIT® 1 Qt. Gel

G5563—SLIPIT® 12 oz Spray

G2871—Boeshield® T-9 12 oz Spray

G2870—Boeshield® T-9 4 oz Spray

H3788—G96® Gun Treatment 12 oz Spray

H3789—G96® Gun Treatment 4.5 oz Spray



Figure 68. Recommended products for protecting unpainted cast iron/steel part on machinery.

G1070—MT3 Live Center Set

A super blend of quality and convenience, this live center set offers seven interchangeable tips. High-quality needle bearings prolong tool life and special tool steel body and tips are precision ground. Supplied in wooden box.



Figure 69. G1070 Live Center Set.

Call 1-800-523-4777 To Order



G9610—Test Indicator

.03" Range/.001" Resolution

G9611—Test Indicator

.008" Range/.0001" Resolution

G9612—Test Indicator

.030" Range/.0005" Resolution

These test indicators have an easy to read dial and a pivoting stylus that moves at right angles to the dial face.



Figure 70. Test Indicator.

H6879—Lathe Operation & Maintenance Book

This detailed metal lathe book provides extensive coverage of a wide variety of metalworking operations. Special emphasis is placed on lathe components, accessories, and operating procedures, including basic machine setup and routine maintenance. A "must have" reference for all metal lathe owners. 260 pages.

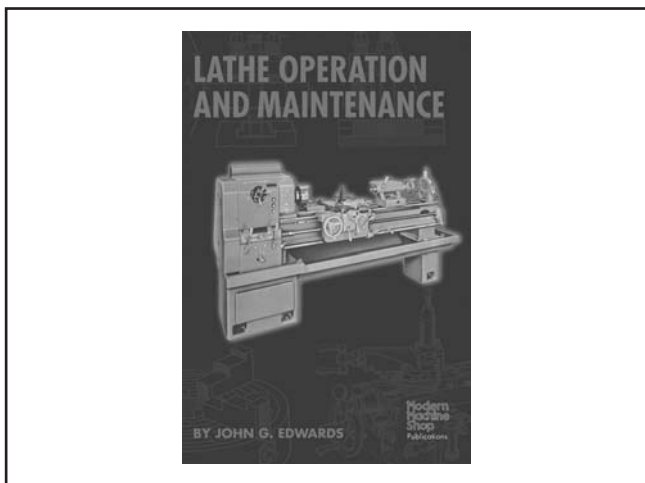


Figure 71. H6879 Lathe Operation & Maintenance Book.

G0688—Tool Post Grinder

This tool post grinder has what it takes to make your project to spec and look good, too! The heavy support casting is loaded with a precision spindle that will provide spectacular finishes on even the toughest jobs. Comes supplied with one external grinding wheel, one internal grinding wheel, and balanced mandrel pulleys and belts for each wheel.

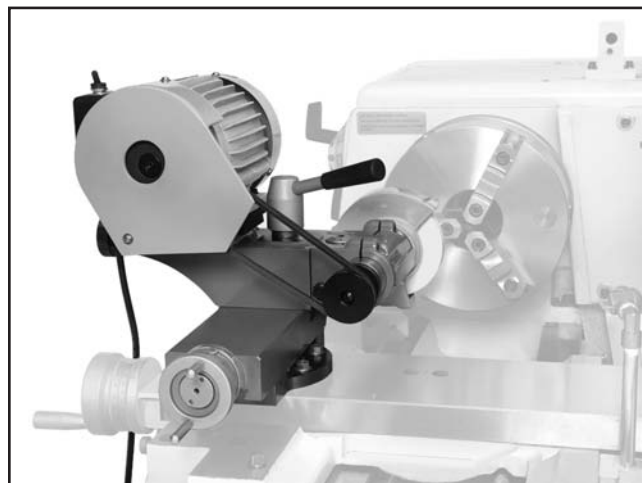


Figure 72. G0688 Tool Post Grinder.

G8787—7-Pc. Deluxe Tool Holder Set

This Deluxe Tool Holder Set features seven 5/8" indexable tools for one unbelievable price. Set includes left- and right-hand tool holders with 0° side cutting angle and 80° diamond inserts, right-hand tool holder with 15° end and side cutting angle and square insert, right-hand tool holder with 45° end cutting angle and 80° diamond insert, right-hand threading tool with trigon insert and right-hand parting tool. Wrenches included.

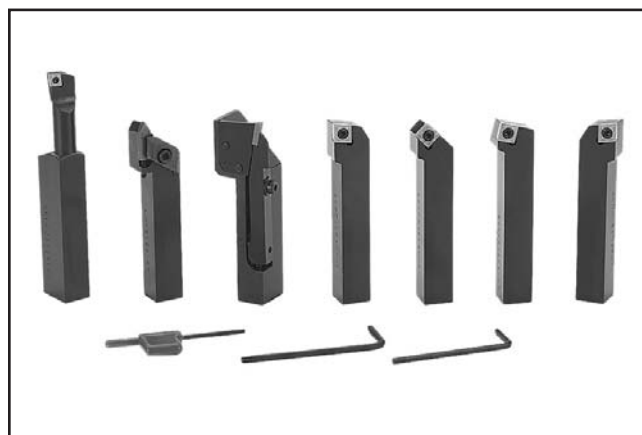
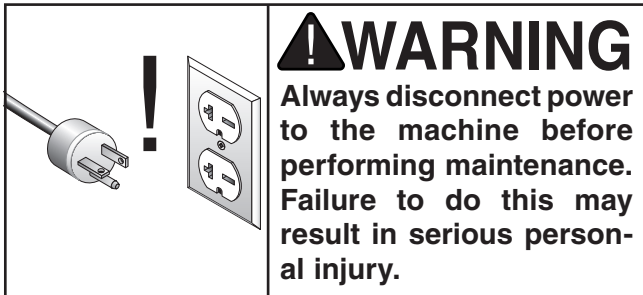


Figure 73. G8787 7-Pc. Deluxe Tool Holder Set.

Call 1-800-523-4777 To Order



SECTION 6: MAINTENANCE



Schedule

For optimum performance from your machine, follow this maintenance schedule and refer to any specific instructions given in this section.

Note: *This maintenance schedule is based on average daily usage. Adjust the maintenance schedule to match your usage to keep your lathe running smoothly and to protect your investment.*

Daily Check:

- Loose mounting bolts.
- Worn or damaged wires.
- Any other unsafe condition.

Every 8 Hours of Operation:

- Clean the machine.
- Perform the daily lubrication tasks (**Page 51**).
- Check/fill headstock, gearbox, and apron oil reservoirs (**Page 52**).
- Check/fill the coolant tank (**Page 54**).

2 Weeks After Installation:

- Make sure the bedways are level from side-to-side and front-to-back (**Page 15**).

After First 40 Hours of Operation:

- Drain and refill the headstock, gearbox, and apron oil reservoirs (**Page 52**).

Every 30 Days:

- Drain, clean out, and refill the coolant tank (**Page 54**).

Annually:

- Drain and refill the headstock, gearbox, and apron oil reservoirs (**Page 52**).
- Make sure the bedways are level from side-to-side and front-to-back (**Page 15**).

Cleaning & Protecting

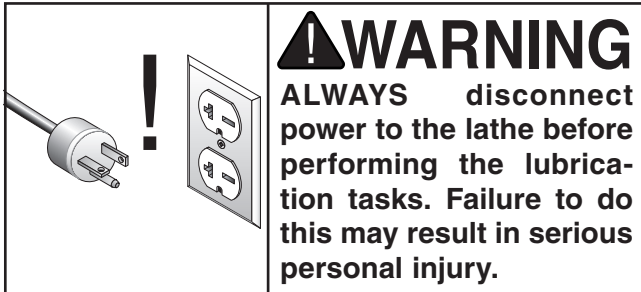
Cleaning the Model G0554Z is relatively easy. Vacuum excess metal chips, then wipe off built-up grime. Protect the unpainted metal surfaces with regular applications of products such as Model H8257 Primrose Armor Plate with Moly-D Machine and Way Oil (refer to **ACCESSORIES** on **Page 48**).



Lubrication

Your lathe has numerous metal-to-metal moving parts that require proper lubrication to help ensure efficient and long-lasting operation.

Other than the lubrication points covered in this section, all other bearings are internally lubricated and sealed at the factory. Simply leave them alone unless they need to be replaced.



Daily Lubrication

The location of the 12 ball oilers that must be oiled each day before operation are shown in **Figures 74–75**.

The number of ball oilers per component are:

- Cross Slide Handwheel: 1
- Carriage: 4
- Cross Slide: 3
- Compound Slide: 1
- Tailstock: 2
- Leadscrew & Feed Rod Bearing End Blocks: 1

Wipe the ball oilers clean, then depress the ball with the tip of the oil bottle filled with ISO 68 oil (or equivalent) and squirt once. Clean away any excess oil from the area.

NOTICE

Failure to followed reasonable lubrication practices as instructed in this manual for your lathe could lead to premature failure of your lathe and will void the warranty.



Figure 74. Location of the nine ball oilers on the carriage components.



Figure 75. Tailstock and leadscrew/feed rod bearing end blocks.

Use shop rags, a stiff brush, and mineral spirits to clean away debris and built-up grime from the **full length** of the bedways, rack, longitudinal leadscrew, and the feed rod (see **Figure 76**). Then apply a thin coat of a good quality way oil to these surfaces, such as Primrose Armor Plate Machine & Way Oil (refer to **Accessories** on **Page 48** for this product from Grizzly).

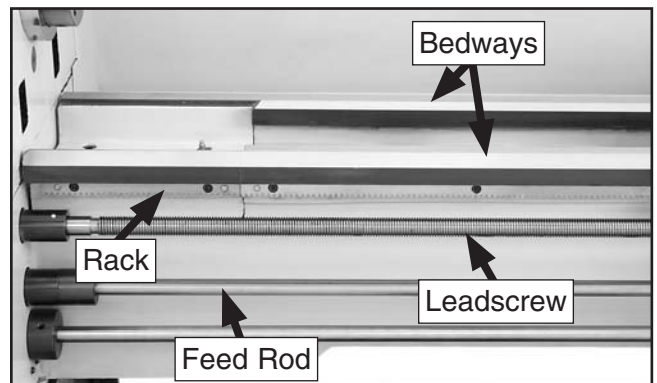


Figure 76. Bedways, rack, longitudinal leadscrew, and feed rod.



NOTICE

Drain and refill the headstock, gearbox, and apron oil reservoirs after the first 40 hours of operation to remove any sludge build-up that may accumulate from initial operation.

Headstock, Gearbox, & Apron Oil Reservoirs

Examine the **Figures 77–80** to identify the locations of the oil sight glasses, drain plugs, and fill plugs for each oil reservoir.

The reservoirs are properly filled when the oil level reaches half-way in the sight glasses. Fill the reservoirs with 20W non-detergent gear oil or an equivalent lubricant. Be sure to thoroughly clean away any excess oil from the fill and drain areas.

NOTICE

When draining the headstock oil reservoir, you must remove the V-belts and take care to thoroughly remove any spilled oil from the pulleys. If oil should get on the V-belts, clean the oil from the pulleys and replace the V-belts with a new set.

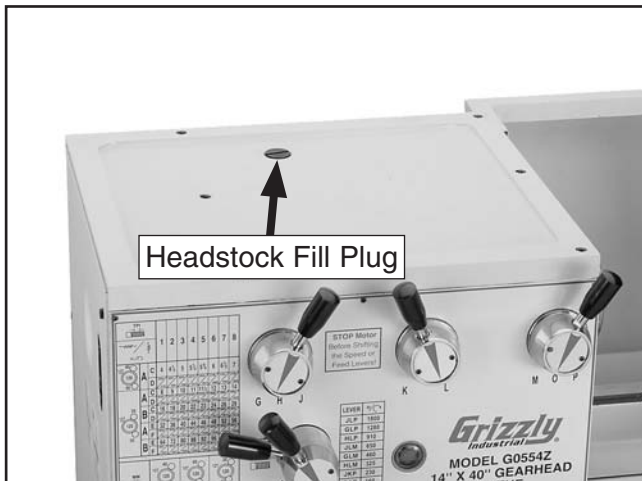


Figure 77. Headstock oil fill plug.



Figure 78. Headstock and gearbox oil sight glasses.

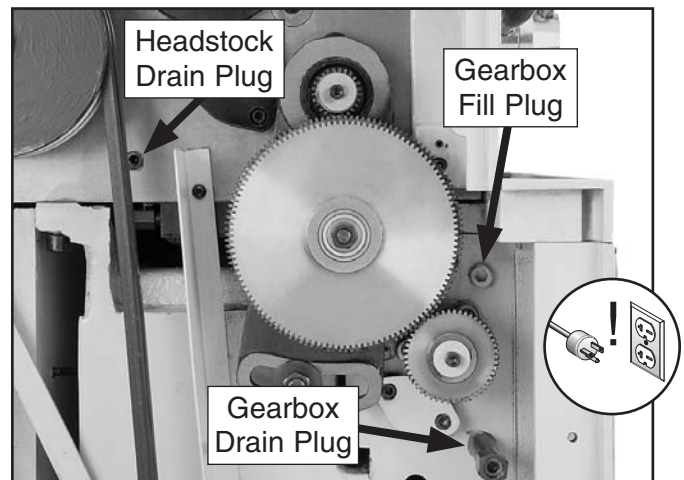


Figure 79. Headstock drain plug, and gearbox fill and drain plugs.

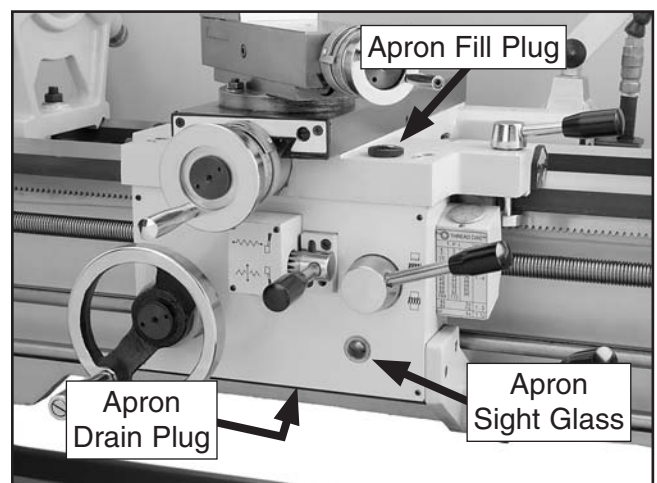


Figure 80. Apron fill plug, sight glass, and drain plug.



Tensioning/ Replacing V-Belts

NOTICE

After the first 16 hours of use, the V-belts will stretch and seat into the pulley grooves. The V-belts must be properly re-tensioned after this period to avoid severely reducing their useful life.

To ensure efficient transfer of power to the spindle, make sure the V-belts are always properly tensioned and in good condition.

If a V-belt is worn, cracked, or damaged, replace both V-belts at the same time to ensure belt tension is even between them, which reduces the risk of premature wear on either belt.

Tools Needed	Qty
Phillips Screwdriver #2	1
Hex Wrench 5mm.....	1
Wrench or Deep Socket 24mm	1

Tensioning V-Belts

1. DISCONNECT LATHE FROM POWER!
2. Open the left side door, then remove the left and rear lower access panels.
3. Refer to **Figure 81** to help identify the locations of the three motor adjustment hex nuts and bolts.

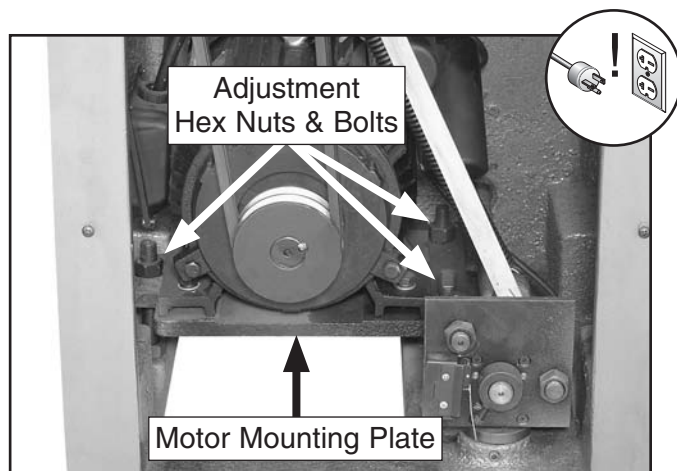


Figure 81. Motor adjustment hex nuts and bolts.

4. Check the deflection of the V-belts by applying moderate pressure midway between the pulleys, as illustrated in **Figure 82**. When properly tensioned, there should be approximately a $\frac{3}{4}$ " deflection.

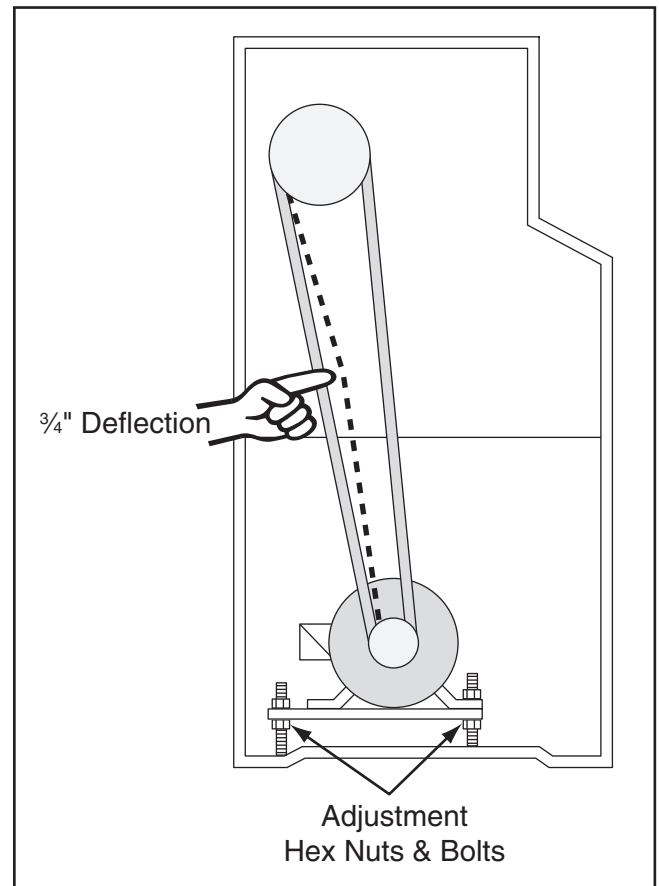


Figure 82. Checking for the proper V-belt tension.

—If there is not a $\frac{3}{4}$ " deflection of the V-belts, loosen each of the top adjustment hex nuts, then raise or lower the motor by turning each hex nut underneath the motor mounting plate by the same amount until the V-belt tension is correct.


5. When you are satisfied that the V-belts are properly tensioned, make sure all adjustment hex nuts are tight, then replace the left and rear lower access panels and secure the left side door.



Replacing V-Belts

1. DISCONNECT LATHE FROM POWER!
2. Perform **Steps 2–3** of the previous procedure.
3. Loosen the three top adjustment hex nuts, then raise the motor up by evenly rotating the hex nuts underneath the motor mounting plate until there is enough slack in the V-belts to roll them off the motor pulley.
4. Replace both V-belts at the same time, properly tension them as instructed in the previous procedure, then replace the access panels and secure the left side door.

Checking/Cleaning Coolant System

	<p>! WARNING</p> <p>Coolant is a potent and extremely poisonous solution to humans and animals. Use personal protective equipment when handling coolant to prevent infections or poisoning.</p>
---	--

A screen in the splash pan keeps large swarf under the bedway where it can be removed during daily cleaning. However, smaller swarf washes down into the coolant tank where it is separated from the pump by a wall inside the tank. If this swarf builds up higher than the wall, then it overflows into the pump chamber and clogs the pump. Regular cleaning of the reservoir will ensure the swarf never flows over the separating wall.

A small amount of coolant is lost during normal operation. Check the coolant tank daily and fill it if necessary. In addition, coolant eventually becomes rancid or contaminated with dangerous microbes, which makes it unsuitable for further use. When this happens, drain, clean, and refill the tank.

Checking Coolant Tank

When checking the coolant tank, the goal is to make sure there is enough coolant, the swarf level in the first chamber of the tank is not too high, and the coolant has not become contaminated.

Tools Needed	Qty
Phillips Screwdriver	1
Flashlight	1

To check the coolant tank:

1. DISCONNECT THE MILL FROM POWER!
2. Remove the right side access panel to examine the coolant tank, as shown in **Figure 83**.

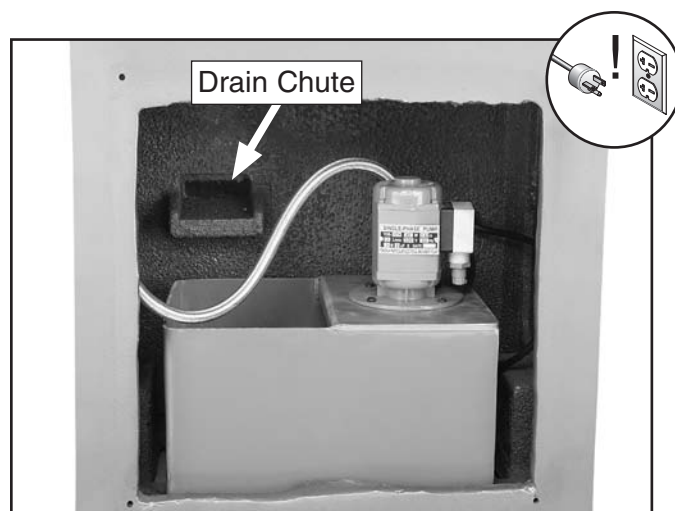


Figure 83. Coolant tank and pump.

<p>! WARNING</p> <p>Always use non-flammable water-based coolant to avoid explosions when the fluid comes in contact with hot metal chips from the milling operation. For best results, always follow the coolant manufacturer's recommendations for coolant/water ratios.</p>



3. Inspect the level and quality of the coolant.
 - If the level of the coolant is below approximately 2" from the top, add coolant.
 - Use a flashlight and inspect the level of swarf inside the first chamber of the tank. If the swarf level is beyond $\frac{3}{4}$ the height of the partition wall, then the tank must be cleaned (see the illustration in **Figure 84**).

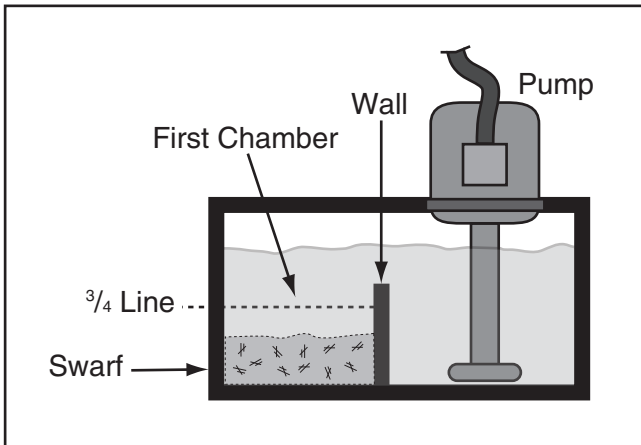


Figure 84. Diagram of coolant tank and pump.

- If the coolant smells rancid or is very cloudy, it is contaminated and will need to be replaced.
4. Make sure the tank is positioned all the way to the left underneath the drain chute, then re-install the access panel before resuming operations.

⚠️ WARNING

The coolant tank on this lathe is designed to store only coolant. During storage some fluids grow dangerous microbes, or, due to the collection of toxic metal chips in the fluid, the fluid can become a potent and extremely poisonous solution to humans and animals.

Use the correct personal protection equipment when handling coolant to prevent infections and poisoning.

Follow Federal, State, and the coolant manufacturer's requirements to properly dispose of used coolant.

Cleaning Coolant Tank

The coolant tank of your lathe holds approximately three gallons of coolant.

Replace the coolant every 30 days or sooner if it gives off a foul odor, which is due to the growth of dangerous microbes.

Tools Needed	Qty
Phillips Screwdriver	1

To replace the coolant:

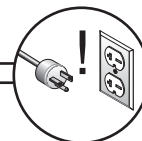
1. DISCONNECT LATHE FROM POWER!
 2. Remove the right side access panel.
 3. Pull the coolant tank out from the lathe and remove the pump.
 4. Follow the Federal, State, and the coolant manufacturer's requirements to drain and dispose the contents of the coolant tank.
 5. Flush out the coolant tank and remove all of the swarf, then clean the intake screen on the bottom of the pump.
 6. Refill the tank with approximately three gallons of coolant, re-attach the pump, then position the tank all the way to the left underneath the drain chute (see **Figure 83**).
- Tip:** Place strong magnets in the bottom of both tank partitions to keep metal chips from entering the coolant pump.
7. Re-install the access panel before resuming operations.



SECTION 7: SERVICE

Review the troubleshooting and procedures in this section to fix or adjust your machine if a problem develops. If you need replacement parts or you are unsure of your repair skills, then feel free to call our Technical Support at (570) 546-9663.

Troubleshooting

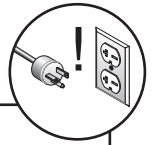


Motor & Gearbox

Symptom	Possible Cause	Possible Solution
Motor will not start.	<ol style="list-style-type: none"> 1. Stop button not reset. 2. Main power switch is OFF. 3. Left side door is open and limit switch is tripped. 4. Circuit breaker or fuse has tripped. 5. No voltage or open connection. 6. Capacitor is at fault. 7. Spindle switch(es) are at fault. 8. Main power switch, stop button, or magnetic contactor is at fault. 9. Side door or foot brake limit switch is at fault. 10. Motor is at fault. 	<ol style="list-style-type: none"> 1. Reset stop button. 2. Turn the main power switch ON. 3. Close and secure the left side door. 4. Seek an electrician to troubleshoot and repair the power supply. 5. Test circuit, replace wires and connections as required. 6. Replace capacitor. 7. Replace switch(es). 8. Test/replace. 9. Replace limit switch(es). 10. Replace motor.
Fuses or circuit breakers trip open.	<ol style="list-style-type: none"> 1. Short circuit in line cord or plug. 2. Short circuit in motor or loose connections. 3. Incorrect fuses or circuit breakers in power supply. 	<ol style="list-style-type: none"> 1. Inspect cord or plug for damaged insulation and shorted wires. 2. Inspect all connections on motor for loose or shorted terminals or worn insulation. 3. Install correct fuses or circuit breakers.
Machine is loud; V-belts slip when cutting. Overheats or bogs down in the cut.	<ol style="list-style-type: none"> 1. Excessive depth of cut. 2. Spindle speed or feed rate wrong for operation. 3. Dull cutting tools. 4. V-belts are slipping. 	<ol style="list-style-type: none"> 1. Decrease depth of cut. 2. Set the proper spindle speed and feed rate (Page 40). 3. Sharpen or replace cutting tools. 4. Inspect/tension/replace V-belts.
Gear change levers will not shift into position.	<ol style="list-style-type: none"> 1. Gears not aligned in headstock. 	<ol style="list-style-type: none"> 1. Maintain pressure on the lever and rotate spindle by hand until gear falls into place.
Loud, repetitious noise coming from machine at or near the motor.	<ol style="list-style-type: none"> 1. Pulley set screws or keys are missing or loose. 2. Motor fan is hitting the cover. 	<ol style="list-style-type: none"> 1. Inspect keys and set screws. Replace or tighten if necessary. 2. Tighten fan or shim cover, or replace items.
Motor is loud when cutting. Overheats or bogs down in the cut.	<ol style="list-style-type: none"> 1. Excessive depth of cut or feed rate. 2. Spindle speed or feed rate wrong for cutting operation. 3. Cutting tool is dull. 4. Quick change gear setup is too tight, causing them to bind. 	<ol style="list-style-type: none"> 1. Decrease depth of cut or feed rate. 2. Refer to RPM feed rate chart for appropriate rates. 3. Sharpen or replace the cutting tool. 4. Re-adjust the quick change gear setup with a small amount of backlash so the gears move freely and smoothly when the spindle is rotated by hand.



Operation and Work Results



Symptom	Possible Cause	Possible Solution
Bad surface finish.	<ol style="list-style-type: none"> 1. Incorrect spindle speed or feed rate. 2. Dull tool or poor tool selection. 3. Depth of cut too great. 4. Too much play in gibs. 5. Tool too high. 	<ol style="list-style-type: none"> 1. Adjust for proper spindle speed and feed rate. 2. Use sharp tools; use correct tool for the operation. 3. Reduce depth of cut and take more passes. 4. Adjust gibs (Page 58). 5. Lower tool position.
Entire machine vibrates excessively upon startup and while running.	<ol style="list-style-type: none"> 1. Workpiece is unbalanced. 2. Worn or broken gear present. 3. Chuck or faceplate has become unbalanced. 4. Spindle bearings at fault. 	<ol style="list-style-type: none"> 1. Reinstall workpiece so it is as centered with the spindle bore as possible. 2. Inspect gears and replace if necessary. 3. Re-balance/replace chuck or faceplate; contact a local machine shop for help. 4. Tighten or replace spindle bearings (Page 62).
Cutting tool or machine components vibrate excessively during cutting.	<ol style="list-style-type: none"> 1. Tool holder not tight enough. 2. Cutting tool sticks too far out of tool holder; lack of support. 3. Depth of cut too great. 4. Gibs are out of adjustment. 5. Dull cutting tool. 6. Incorrect spindle speed or feed rate. 	<ol style="list-style-type: none"> 1. Check for debris, clean, and retighten. 2. Reinstall cutting tool so no more than $\frac{1}{3}$ of the total length is sticking out of tool holder and it is secured by at least two post bolts. 3. Reduce depth of cut and take more passes. 4. Adjust gibs of affected component (Page 58). 5. Replace or re-sharpen cutting tool. 6. Use the recommended spindle speed or feed rate.
Can't remove tapered tool from tailstock quill.	<ol style="list-style-type: none"> 1. Quill not retracted all the way back into the tailstock. 2. Debris not removed from taper before inserting into quill. 	<ol style="list-style-type: none"> 1. Turn the quill handwheel until it forces taper out of quill. 2. Always make sure that taper surfaces are clean.
Cross slide, compound rest, or carriage feed has sloppy operation.	<ol style="list-style-type: none"> 1. Gibs are out of adjustment. 2. Handwheel is loose. 3. Lead screw mechanism worn or out of adjustment. 	<ol style="list-style-type: none"> 1. Adjust gibs of affected component (Page 58). 2. Tighten handwheel fasteners. 3. Tighten any loose fasteners on lead screw mechanism; adjust backlash (cross slide only, Page 58).
Cross slide, compound rest, or carriage feed handwheel is hard to move.	<ol style="list-style-type: none"> 1. Gibs are loaded up with shavings or grime. 2. Gibs are too tight. 3. Backlash setting too tight (cross slide only). 4. Bedways are dry. 	<ol style="list-style-type: none"> 1. Remove gibs, clean ways/dovetails, lubricate, and re-adjust gibs (Page 58). 2. Loosen gibs slightly, and lubricate bedways (Page 58). 3. Slightly loosen backlash setting (Page 58). 4. Lubricate bedways and carriage components (Page 51).
Inaccurate turning results from one end of the workpiece to the other.	<ol style="list-style-type: none"> 1. Headstock and tailstock are not properly aligned with each other. 2. Bedways are not level from side-to-side or front-to-back. 	<ol style="list-style-type: none"> 1. Realign the tailstock to the headstock spindle bore center line (Page 33). 2. Re-level the machine.
Chuck jaws won't move or don't move easily.	<ol style="list-style-type: none"> 1. Chips lodged in the jaws. 	<ol style="list-style-type: none"> 1. Remove jaws, clean and lubricate chuck threads, and replace jaws.
Carriage won't feed, or hard to move.	<ol style="list-style-type: none"> 1. Carriage lock lever tightened. 2. Gears are not all engaged or broken. 3. Gibs are too tight. 4. Lead screw shear pin has sheared. 	<ol style="list-style-type: none"> 1. Loosen the carriage lock lever. 2. Adjust gear positions or replace. 3. Loosen gibs slightly (Page 58). 4. Correct the cause of shear pin breakage, and replace shear pin (Page 60).
Tailstock quill will not feed out of tailstock.	<ol style="list-style-type: none"> 1. Quill lock lever is tightened. 	<ol style="list-style-type: none"> 1. Loosen quill lock lever.



Cross Slide Backlash Adjustment

Backlash is the amount of play in a leadscrew. It is felt when turning the handwheel in one direction, then turning it in the other direction. The distance the handwheel moves without moving the leadscrew or the attached component is the backlash.

When adjusting the backlash, the goal is to remove excess backlash without making the cross slide bind, making it hard to move. Overtightening will cause excessive wear on the sliding surfaces and the leadscrew. Generally, a backlash of 0.003"–0.006" is acceptable.

Tools Needed	Qty
Hex Wrench 5mm.....	1

To remove excess cross slide backlash:

1. DISCONNECT LATHE FROM POWER!
2. The cap screw shown in **Figure 85** secures the cross slide to the leadscrew nut. Remove this cap screw, then remove the cross slide.

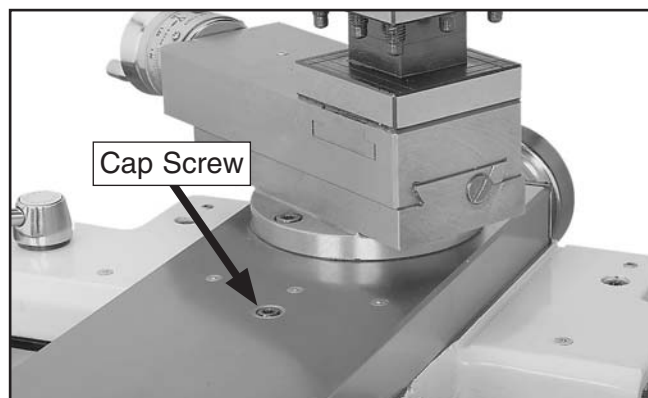


Figure 85. Cross slide backlash adjustment cap screw.

3. Tighten or loosen the cap screw in the front of the leadscrew nut to adjust the backlash (refer to **Part Reference Number 520** on **Page 84** for the location of this cap screw).
4. Repeat **Step 3** until you are satisfied with cross slide backlash, then re-install the cross slide.

Gib Adjustments

The Model G0554Z has four gib adjustments: the cross slide gib, the compound gib, the saddle gib, and the tailstock gib.

When adjusting gibs, the goal is to remove unnecessary sloppiness from the movement of the sliding surfaces without causing them to bind. Loose gibs may cause poor finishes on the workpiece due to chatter, and overtightening them will cause premature wear of the sliding surfaces.

Tools Needed	Qty
Flat Head Screwdriver #2.....	1
Wrench or Socket 10mm.....	1
Hex Wrench 3mm.....	1

Cross and Compound Slide Gibs

These gibs are wedge-shaped bars that, depending on which direction they are moved by the gib screws, either increase or decrease the pressure between the gib and the ways. **Figures 86–87** show the gib components for the cross and compound slides.

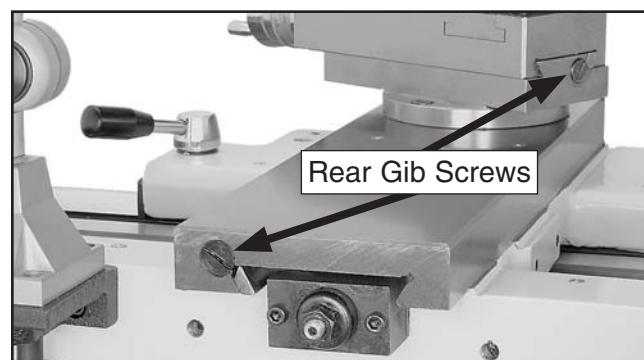


Figure 86. Cross and compound slide rear gib screws.



Figure 87. Front gib screws.



Moving the gib toward the front of the slide increases pressure and moving it toward the rear of the slide decreases the pressure.

Loosen one gib screw a small amount, tighten the other gib screw the same amount, then test the movement of the slide. Continue this process until you are satisfied with the results.

Saddle Gib

The saddle gib is located on the bottom of the back edge of the slide, as shown in **Figure 88**. Instead of being a wedge-shaped bar like the cross and compound slide gibs, it is a flat bar. Tension is applied by the four adjustment set screws shown in **Figure 88**.

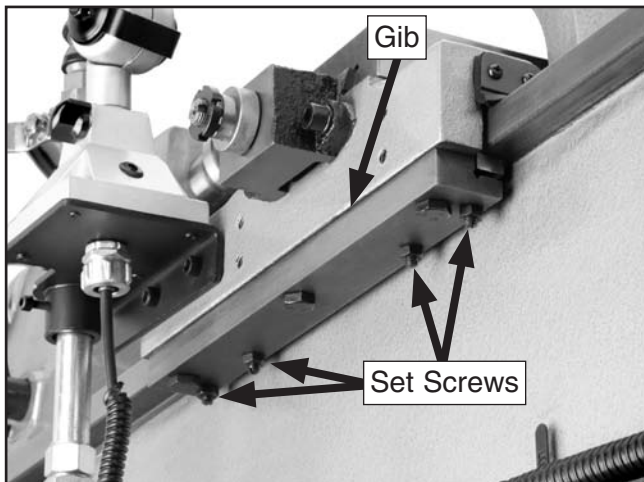


Figure 88. Saddle gib components.

To adjust the saddle gib:

1. DISCONNECT LATHE FROM POWER!
2. Loosen the hex nuts securing the four adjustment set screws, then back off each set screw one full turn to release the pressure on the gib.
3. Manually move the saddle back-and-forth along the bedway to fully release the gib.
4. Tighten each set screw $\frac{1}{4}$ turn, then manually move the saddle back-and-forth to test the results.
5. Repeat **Step 4** until you are satisfied with the results, then re-tighten the hex nuts without moving the set screws.

Tailstock Gib

The tailstock gib is adjusted in the same manner as the cross and compound slide gibs (see **Figure 89**).

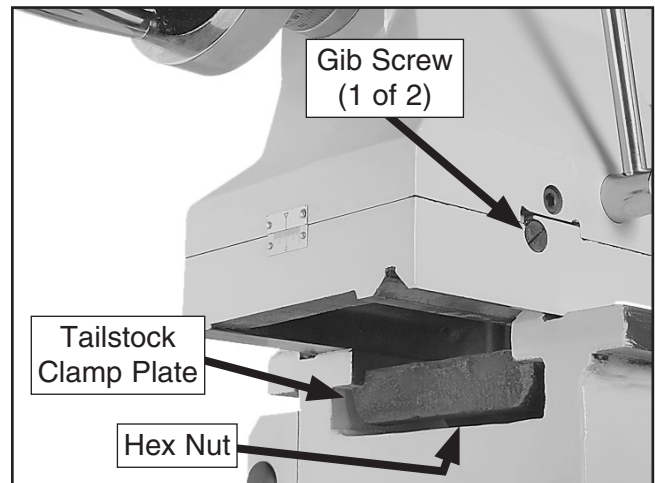


Figure 89. Tailstock gib screw (1 of 2).

Tailstock Lock Adjustment

The tailstock clamping plate applies pressure to the bedway when the tailstock lock lever is tightened to hold the tailstock in place. The amount of pressure the clamp applies was adjusted at the factory. However, you can re-adjust it if necessary.

Tools Needed

Tools Needed	Qty
Socket 19mm.....	1

To adjust the tailstock lock:

1. DISCONNECT LATHE FROM POWER!
2. Move the tailstock to a location on the bedway so that you can access the clamping plate hex nut from underneath the tailstock (see **Figure 89**).
3. Tighten the hex nut a small amount, then tighten the lock lever to test the results.
4. Repeat **Step 3** until you are satisfied with the clamping pressure applied with the tailstock lock lever.



Shear Pin Replacement

The longitudinal leadscrew is secured to the connecting collar of the gearing in the headstock with the use of a soft-metal tapered shear pin (see **Figure 90**). The shear pin is designed to break and disengage power to the leadscrew to help protect more expensive lathe components if you crash your carriage or take too large of a cut and overload the lathe.

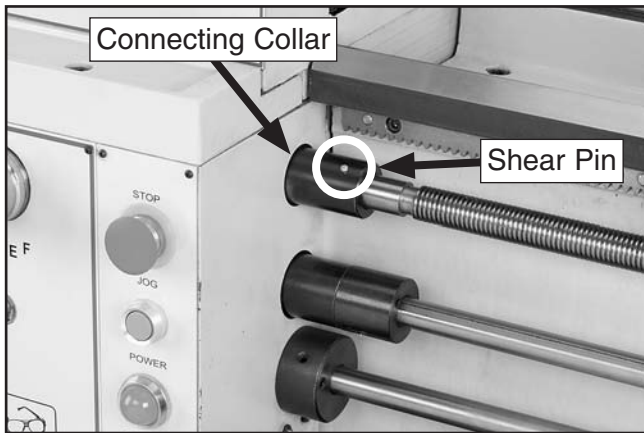


Figure 90. Longitudinal leadscrew shear pin.

Tools Needed	Qty
Hex Wrench 6mm.....	1
Hammer.....	1
Punch 2.5mm	1

To replace the shear pin:

1. DISCONNECT LATHE FROM POWER!
2. Move the power feed lever to the horizontal position to disengage it, then hold the leadscrew in place by moving the half-nut lever up to engage the half-nut.

3. Remove the leadscrew end bracket shown in **Figure 91**.

Note: Take care not to put pressure on the leadscrew or rods when the end bracket is removed to prevent bending them.

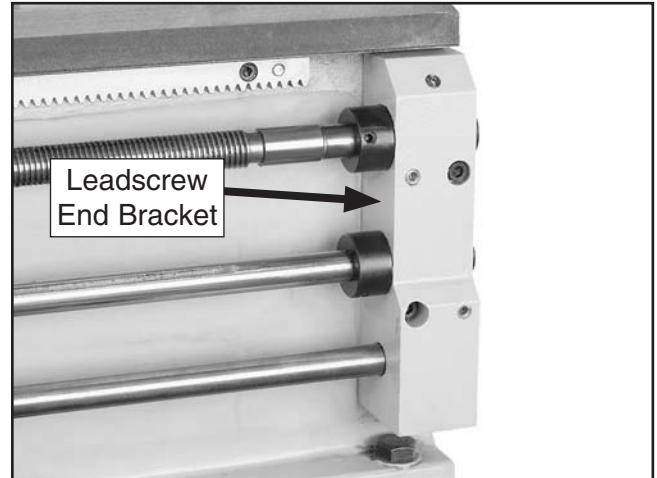


Figure 91. Leadscrew end bracket.

4. Use the carriage handwheel to slowly pull the leadscrew away from the connecting collar on the gearbox.
 5. Drill out the pieces of the shear pin from the leadscrew and connecting collar, then carefully re-insert the leadscrew back into the collar so that the shear pin hole is correctly aligned through both parts.
- Note:** Keep in mind that the shear pin hole is tapered and must be properly aligned to accept a new tapered shear pin.
6. Re-install a new tapered shear pin.
 7. Re-install the leadscrew end bracket



Brake Pads

When the brake pads are worn down to less than $\frac{1}{8}$ " thick, they must be replaced. If the brake pads completely wear out, then metal will grind on metal and the pulley may be ruined.

When replacing the brake pads, the inside of the pulley must be turned so that it is smooth and even as the pulley also acts as the brake drum.

Tools Needed	Qty
Phillips Screwdriver #2	1
Hex Wrenches 5, 6mm.....	1 Each
Wrench or Deep Socket 24mm	1
Needle-Nose Pliers	1
Another Lathe or Brake Turning Machine	1
Dial or Digital Calipers.....	1

To check/replace the brake pads:

1. DISCONNECT LATHE FROM POWER!
2. Open the left side door, then remove it from the hinges.
3. Release the V-belt tension, then remove the V-belts (refer to **Tensioning/Replacing V-Belts** on **Page 53** for detailed instructions).
4. Step on the foot brake to lock the top pulley in place, then remove the cap screw shown in **Figure 92**.

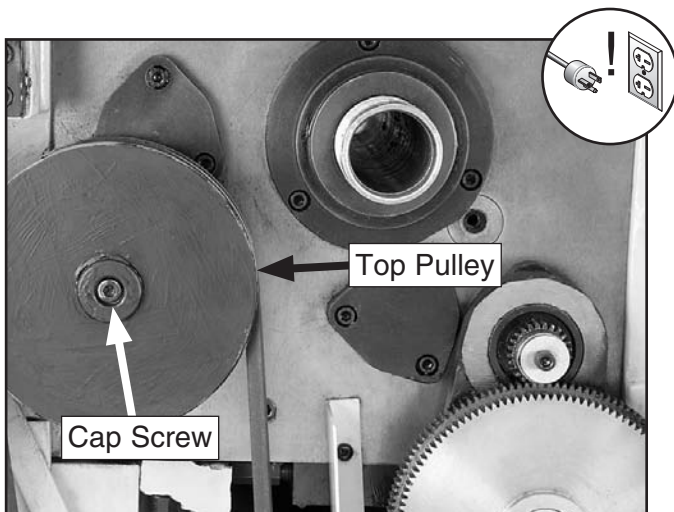


Figure 92. Top pulley and cap screw.

5. Step off the foot brake to release the brakes, then remove the pulley to expose the brake pads, as shown in **Figure 93**.

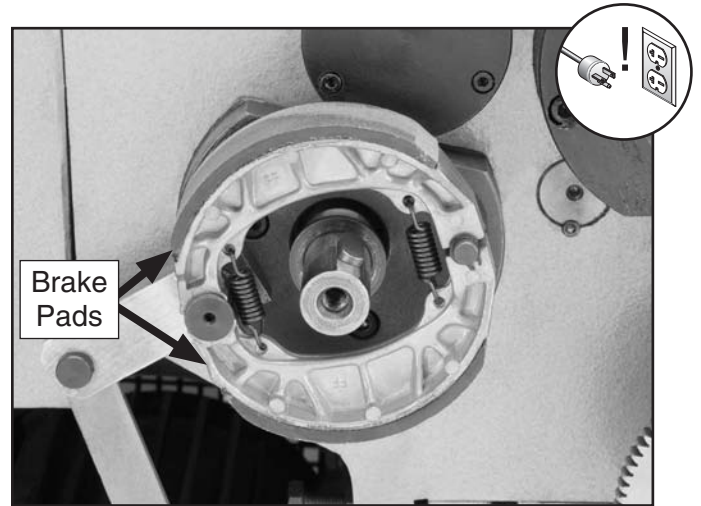


Figure 93. Brake pads exposed.

6. Use your calipers to measure the thickness of both brake pads.
 - If both brake pads are more than $\frac{1}{8}$ " thick, then the brake pads do not need to be replaced. Re-assemble the lathe parts in the opposite manner that you disassembled it in **Steps 2–5**.
 - If either of the brake pads is less than $\frac{1}{8}$ " thick, damaged, or contaminated with oil, the proceed to **Step 7** to replace both pads.
7. Resurface the inside of the pulley. If you do not have the machinery to do this, we recommend taking the pulley to a brake shop for resurfacing.
8. Replace the brake pads with a new set.
9. Install the resurfaced pulley, then re-assemble the rest of the lathe parts in the opposite manner that you disassembled them in **Steps 2–5**.
10. Start the lathe and test the brake to make sure it works properly before placing the machine back into regular operation.
 - If you have any problems with this procedure, please call our Technical Support for assistance.



Spindle Bearing Preload

Your lathe is shipped from the factory with the preload of the spindle tapered roller bearings properly adjusted.

Over time, the bearings will wear and reduce the preload, causing excessive spindle end-play, which is one cause for poor workpiece finish.

If the spindle becomes hotter than you can comfortably leave your hand on after an operation, there may be too much preload and premature wear of the spindle bearings and components could occur.

If your lathe exhibits either of these symptoms, you can adjust the spindle bearing preload.

Tools Needed	Qty
Hex Wrenches 4, 5 mm.....	1 Each
Spanner Wrench 75-84mm	1
Spindle Lock Key.....	1
Dial Indicator with Magnetic Base	1
Heavy Dead Blow Hammer.....	1
Wooden Block	1
Sealant for Headstock Cover	As Needed

To adjust the spindle bearing preload:

1. Run the lathe for approximately 20 minutes at a medium speed to bring the spindle components to their normal working temperature.
2. DISCONNECT LATHE FROM POWER!
3. Remove the headstock cover to enable the use of the spanner wrench in later steps.

Note: Do not allow any debris to fall into the headstock when removing the cover.

Tip: Tightly cover the headstock with clean plastic, such as plastic food wrap, to prevent foreign objects dropping into the headstock during this procedure.

4. Remove the chuck or faceplate from the spindle, then open the left side door to expose the outboard end of the spindle and its end cap, as shown in **Figure 94**.

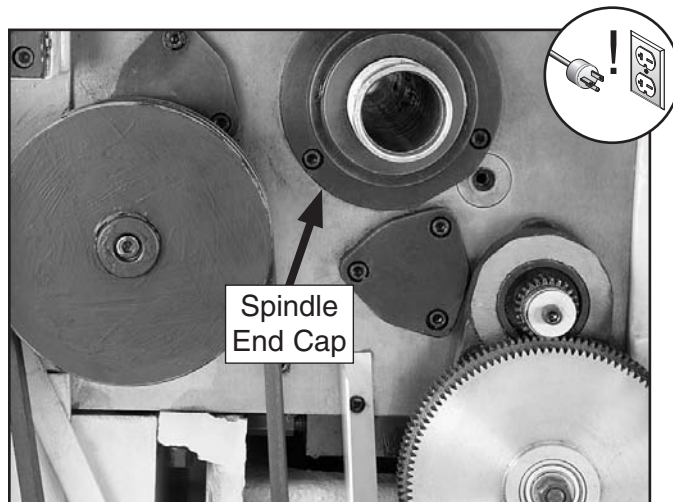


Figure 94. Spindle outboard end cap exposed.

5. Remove the three cap screws securing the end cap, then, taking care not to damage the gasket, remove the end cap from the spindle to expose the spindle nut, as shown in **Figure 95**.

Note: Record the orientation of the oil drain chute on the inside of the end cap so that you can properly re-install the cap later.

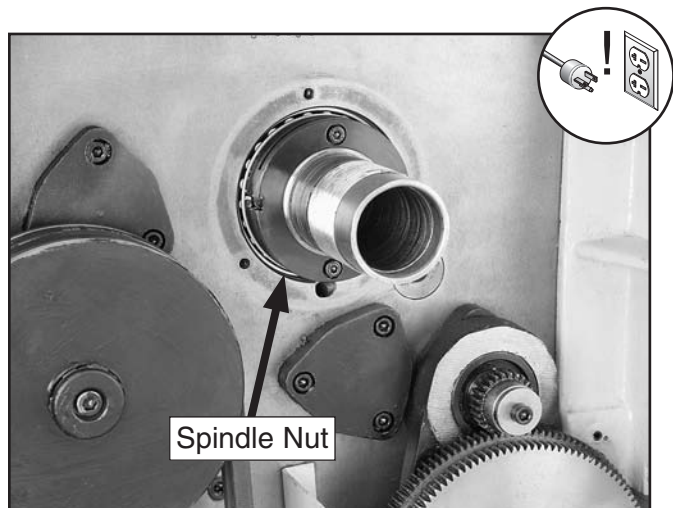


Figure 95. Spindle nut exposed.



6. Remove the three cap screws that secure the spindle nut.
7. If you are performing this procedure because the normal operating temperature of the spindle was too hot, proceed with **Step 8**.

If you are performing this procedure because of excessive spindle end-play, go to **Step 9**.

8. To unload the bearing preload, insert the spindle lock key in a spindle indent to keep the spindle from rotating, then use the spanner wrench to loosen the spindle nut one full turn counterclockwise.

Note: You may have to tap on the outboard portion of the spindle as explained in **Step 9** to help unload the spindle preload and break the spindle nut loose.

9. Place the wooden block over the outboard end of the spindle, and hit it soundly with the heavy dead blow hammer, as shown in **Figure 96**.

Your goal is to slide the spindle forward just enough to introduce spindle end-play that you can feel by hand.

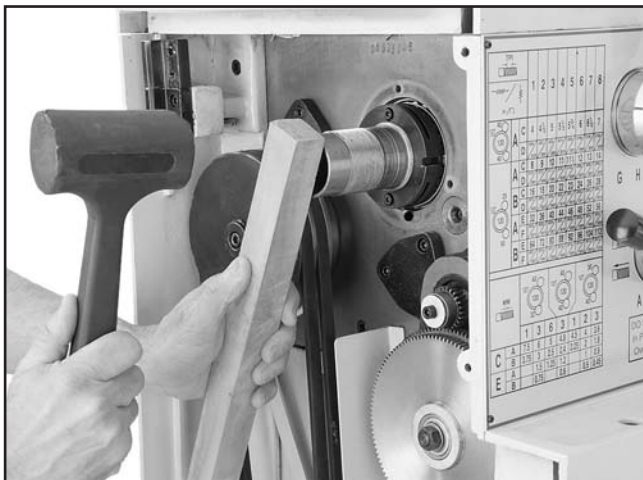


Figure 96. Introducing detectable spindle end-play.

10. Place a dial indicator on the cross slide and move the carriage toward the spindle until the contact point of the indicator just touches the spindle face, then zero out the dial, as shown in **Figure 97**.

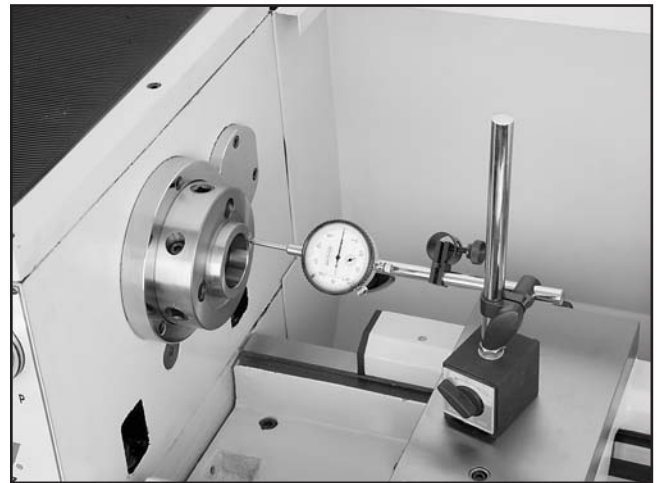


Figure 97. Dial indicator setup.

11. Move the carriage and indicator an additional 0.100" toward the spindle.
12. Keep the spindle from rotating with the spindle lock key, then use the spanner wrench to tighten the spindle nut clockwise until the indicator dial needle just stops moving.

While tightening the spindle nut, rock the spindle back-and-forth slightly to make sure the tapered roller bearing seat properly in their races.

When the dial indicator needle stops moving, there will be no spindle end-play and no bearing preload. It is *essential* that you find this point without tightening the spindle nut further and preloading the bearings.

If you think you may have gone past the zero end-play point, take the time to unload the bearings as instructed in **Step 8**, then retighten the spindle nut until you know you have reached the correct setting.

Tip: Since it takes great effort to properly turn the spindle nut, you may find it difficult to know if you have gone past the zero end-play point or not. It is easiest to have someone watch the dial while you tighten the spindle nut.



- When you are confident that you have adjusted the spindle nut so that there is no spindle end-play or preload, tighten the spindle nut an additional $\frac{9}{16}$ " turn clockwise to introduce the correct amount of spindle bearing preload, which is 0.003" (see **Figure 98**).

Tip: Scribe marks on the spindle nut and the head casting to aid in turning the spindle nut $\frac{9}{16}$ ".

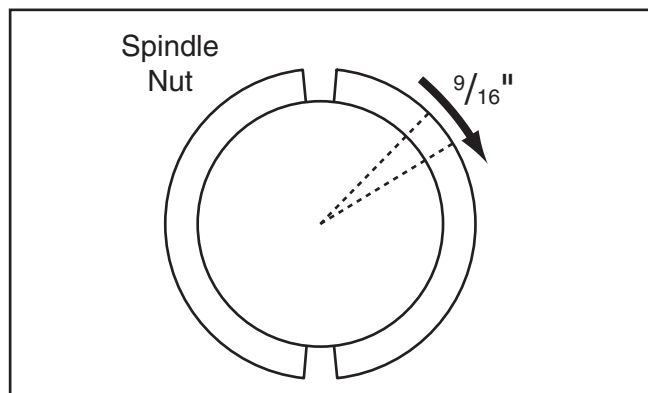


Figure 98. Turning the spindle nut $\frac{9}{16}$ ".

- Re-install the three cap screws into the spindle nut, then prepare the lathe for operation by re-assembling all of the lathe parts.

Note: Drain the headstock oil before replacing the cover and remove any debris from the inside of the headstock. Use a good quality silicone sealant when re-installing the headstock cover, then refill it with lubricant

- Install the chuck and tighten the jaws into the center, set the spindle to a medium speed, then connect the lathe to power and let it run for approximately 20 minutes.
- Turn the spindle **OFF**, let it come to a complete stop, then check the temperature of the spindle.

—If the spindle is slightly warm to the touch, you have the correct spindle bearing preload.

—If the spindle is hotter than you can comfortably keep your hand on, the preload is too tight and you must repeat this spindle bearing preload procedure.

When repeating the procedure, rotate the spanner nut a $\frac{1}{16}$ " less during **Step 13**.

Gap Removal

The Model G0554Z comes equipped with a gap section below the spindle that can be removed for turning large diameter parts or when using a large diameter faceplate.

The gap is installed, then ground at the factory during lathe assembly for precise fit and alignment. Factors during the remaining assembly and subsequent transport of the machine apply additional forces to the gap; therefore, replacing the gap to the original position will be very difficult once you remove it. **If you choose to remove the gap, we do not recommend attempting to replace it.**

Tools Needed	Qty
Wrench 14mm	1
Hex Wrench 8mm.....	1
Dead Blow Hammer	1

To remove the gap:

- Back up the preload set screw to release the locking tension on the gap (see **Figure 99**).

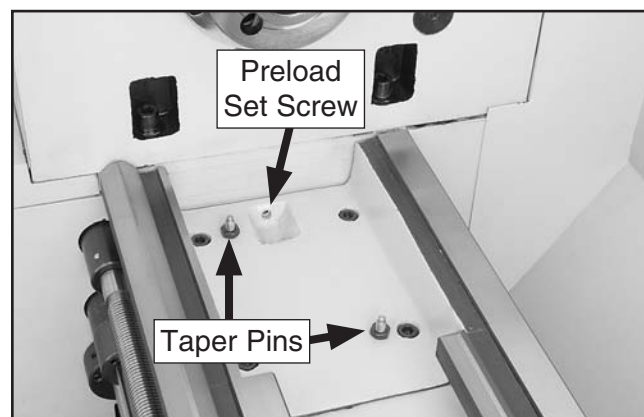


Figure 99. Lathe gap.

- Remove the four cap screws that secure the gap.
- Tighten the hex nuts on the taper pins until the pins release from the gap, then remove the pins.
- Tap the outside of the gap with a dead blow hammer to loosen it, then remove the gap section.



SECTION 8: WIRING

These pages are current at the time of printing. However, in the spirit of improvement, we may make changes to the electrical systems of future machines. Study this section carefully. If there are differences between your machine and what is shown in this section, call Technical Support at (570) 546-9663 for assistance BEFORE making any changes to the wiring on your machine.

WARNING
















Wiring Safety Instructions

1. **SHOCK HAZARD.** Working on wiring that is connected to a power source is extremely dangerous. Touching electrified parts will result in personal injury including but not limited to severe burns, electrocution, or death. Disconnect the power from the machine before servicing electrical components!
2. **QUALIFIED ELECTRICIAN.** Due to the inherent hazards of electricity, only a qualified electrician should perform wiring tasks on this machine. If you are not a qualified electrician, get help from one before attempting any kind of wiring job.
3. **WIRE CONNECTIONS.** All connections must be tight to prevent wires from loosening during machine operation. Double-check all wires disconnected or connected during any wiring task to ensure tight connections.
4. **WIRE/COMPONENT DAMAGE.** Damaged wires or components increase the risk of serious personal injury, fire, or machine damage. If you notice that any wires or components are damaged while performing a wiring task, replace those wires or components before completing the task.
5. **MODIFICATIONS.** Using aftermarket parts or modifying the wiring beyond what is shown in the diagram may lead to unpredictable results, including serious injury or fire.
6. **MOTOR WIRING.** The motor wiring shown in these diagrams is current at the time of printing, but it may not match your machine. Always use the wiring diagram inside the motor junction box.
7. **CAPACITORS.** Some capacitors store an electrical charge for up to five minutes after being disconnected from the power source. To avoid being shocked, wait at least this long before working on capacitors.
8. **CIRCUIT REQUIREMENTS.** You MUST follow the requirements on **Page 9** when connecting your machine to a power source.
9. **EXPERIENCING DIFFICULTIES.** If you are experiencing difficulties understanding the information included in this section, contact our Technical Support at (570) 546-9663.

NOTICE

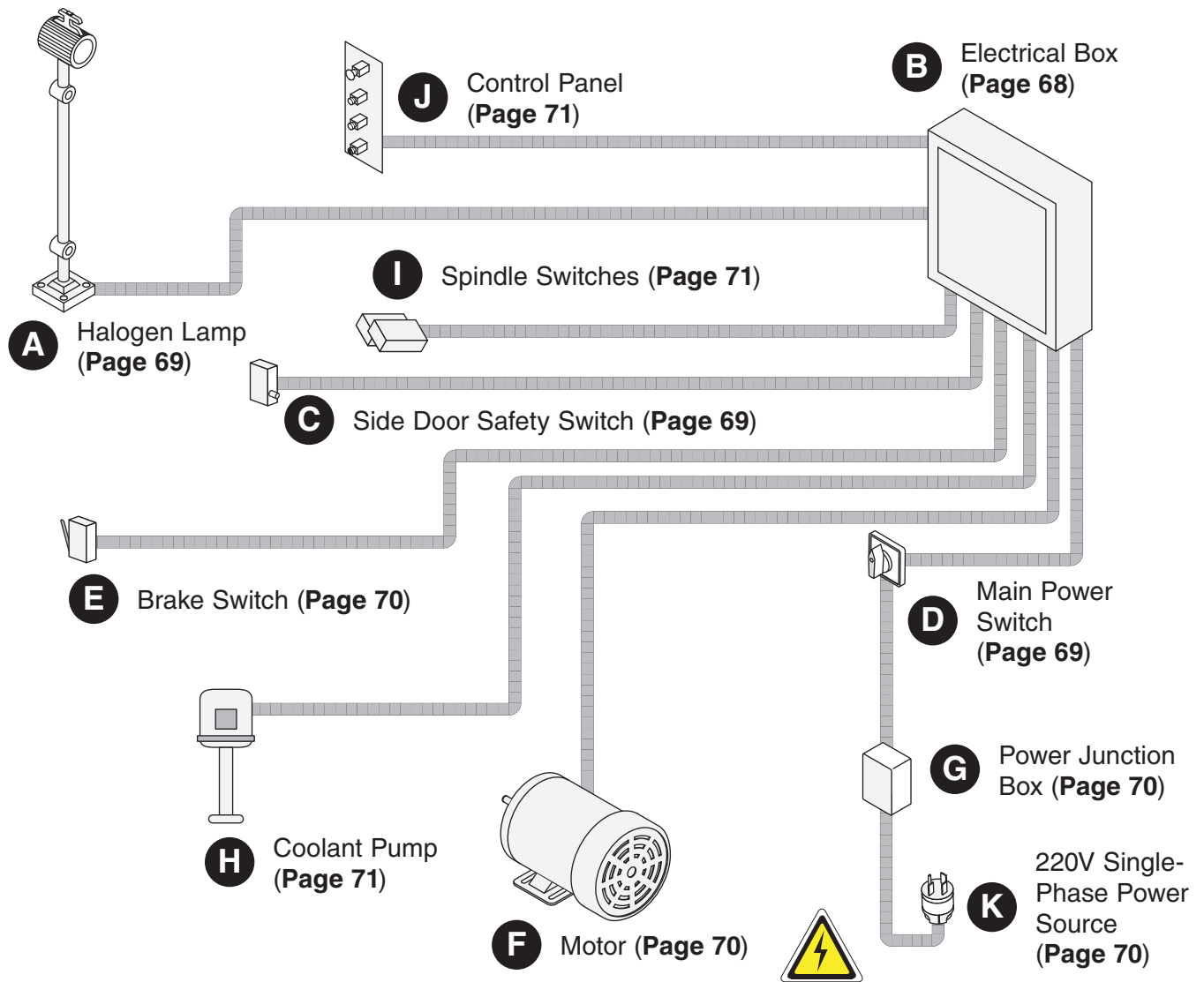
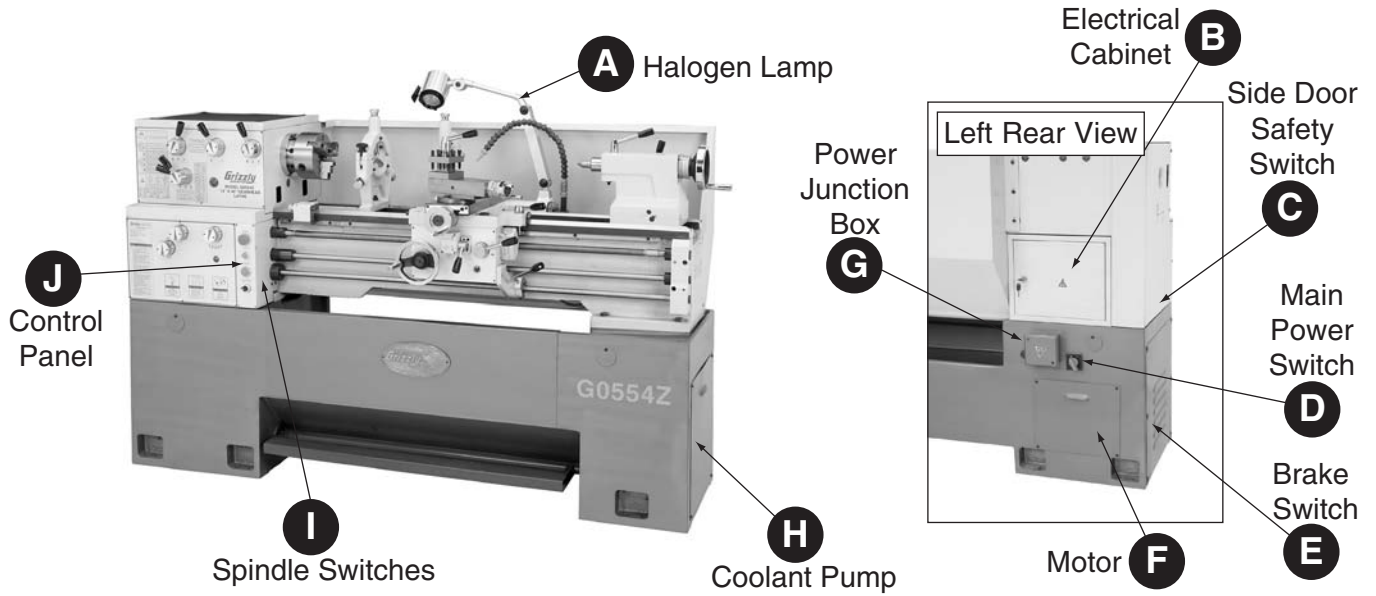
The photos and diagrams included in this section are best viewed in color. You can view these pages in color at www.grizzly.com.

COLOR KEY

BLACK 	BLUE 	YELLOW 	LIGHT BLUE 
WHITE 	BROWN 	YELLOW GREEN 	BLUE WHITE 
GREEN 	GRAY 	PURPLE 	TURQUOISE 
RED 	ORANGE 	PINK 	



Electrical Overview



Electrical Cabinet Identification

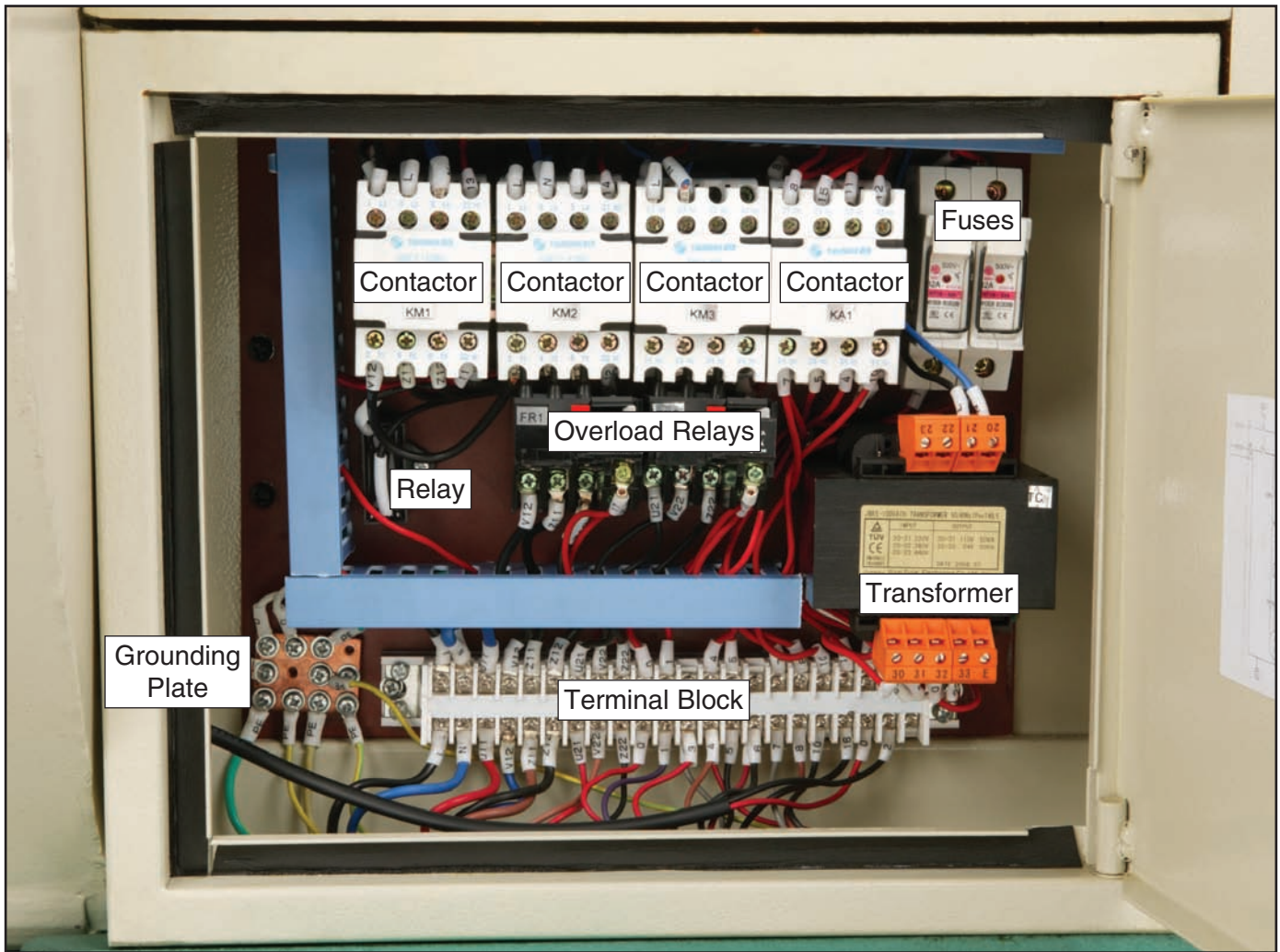


Figure 100. Electrical cabinet identification.

Electrical Components (A)



Figure 101. Halogen lamp.

A Halogen Lamp

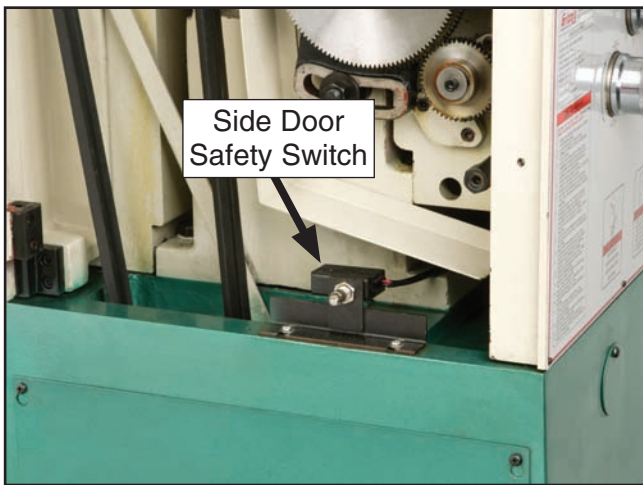
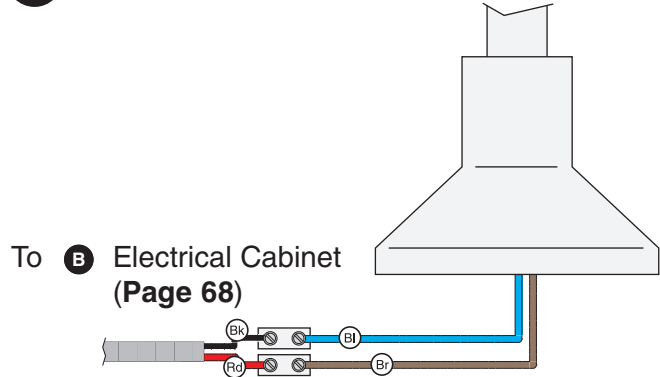


Figure 102. Side door safety switch.

C Side Door Safety Switch

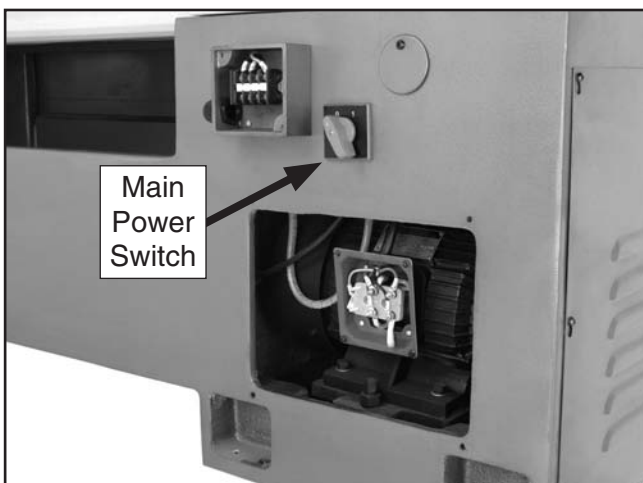
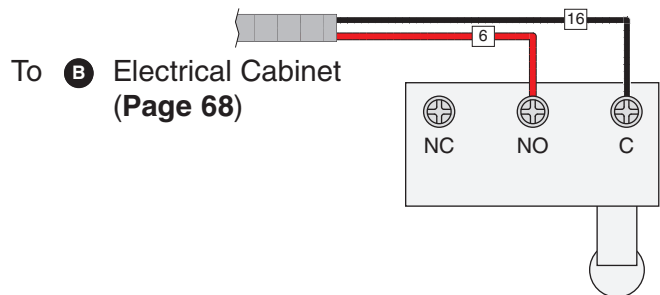
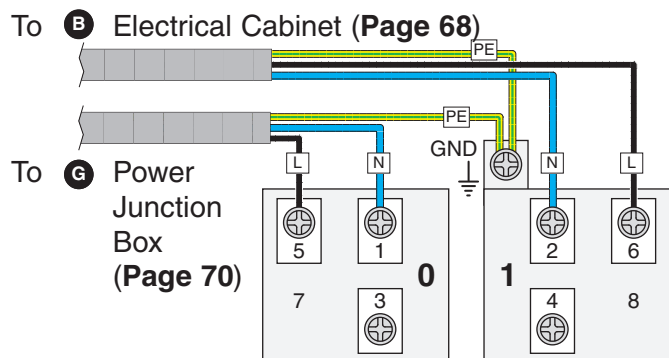


Figure 103. Main power switch.

D Main Power Switch



Electrical Components (B)

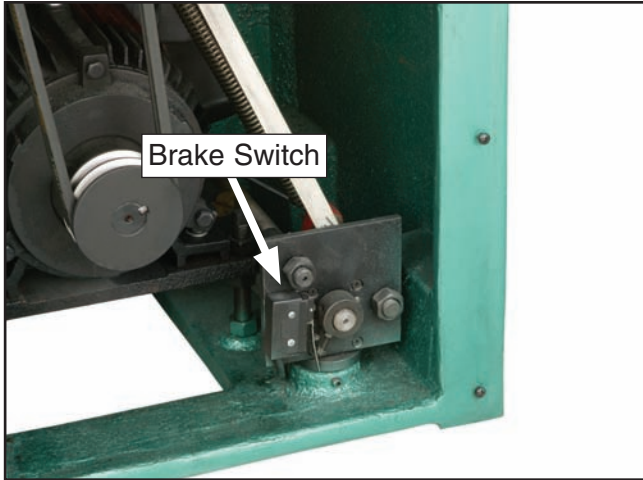


Figure 104. Brake switch.

E Brake Switch

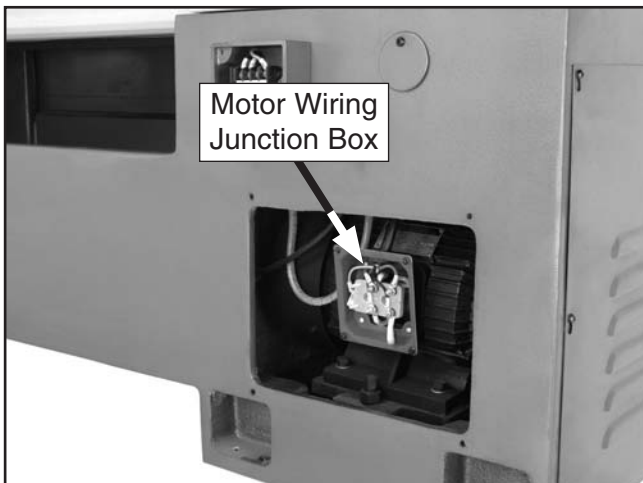
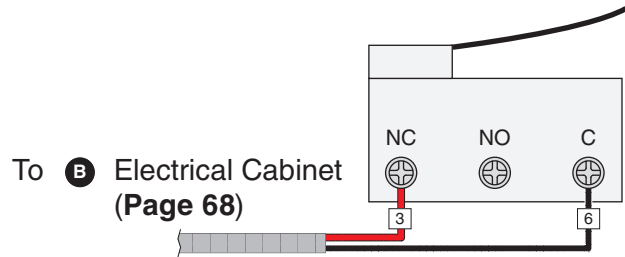


Figure 105. Motor.

F Motor

To B Electrical Cabinet (Page 68)

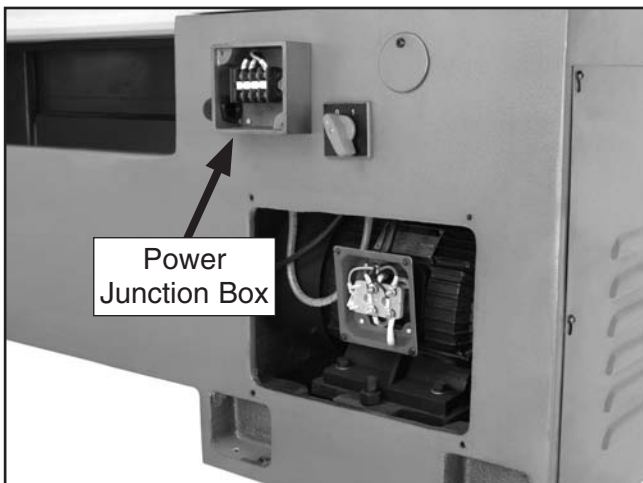
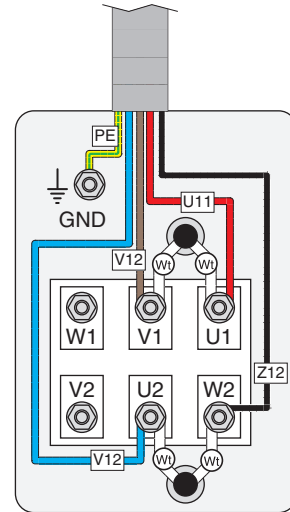


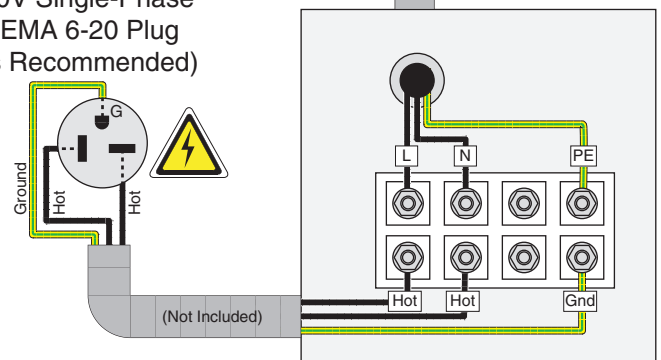
Figure 106. Power junction box.

G Power Junction Box

K Power Source

220V Single-Phase
NEMA 6-20 Plug
(As Recommended)

To D Main Power Switch
(Page 69)

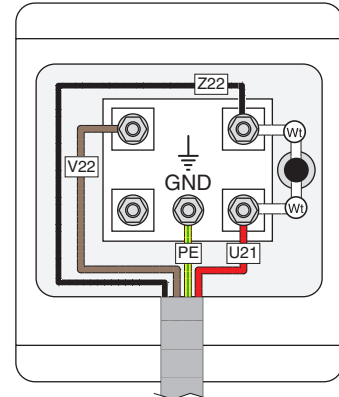


Electrical Components (C)



Figure 107. Coolant pump.

H Coolant Pump



To **B** Electrical Cabinet (Page 68)

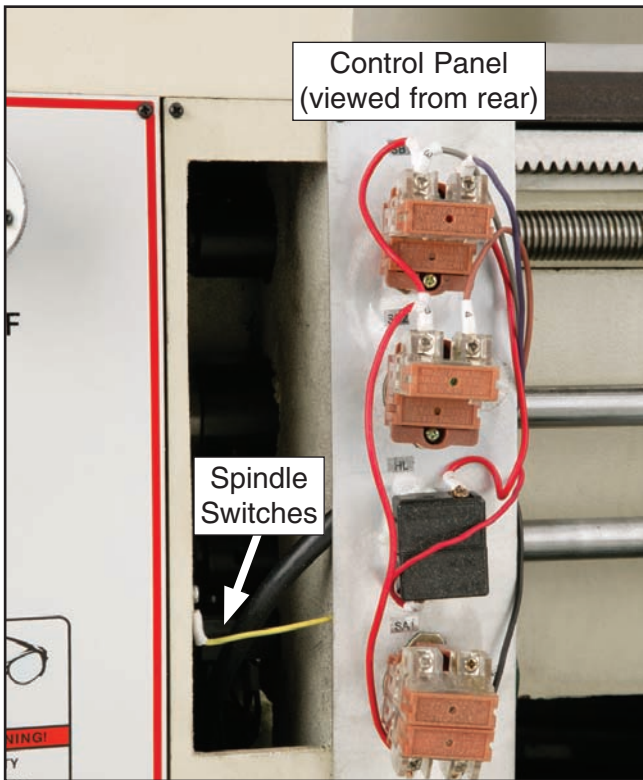
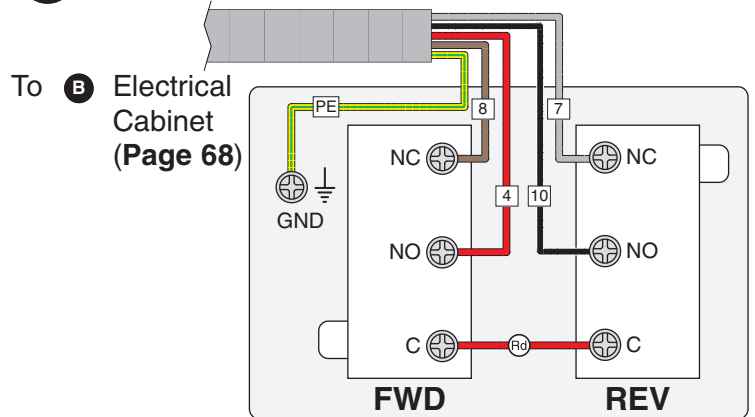


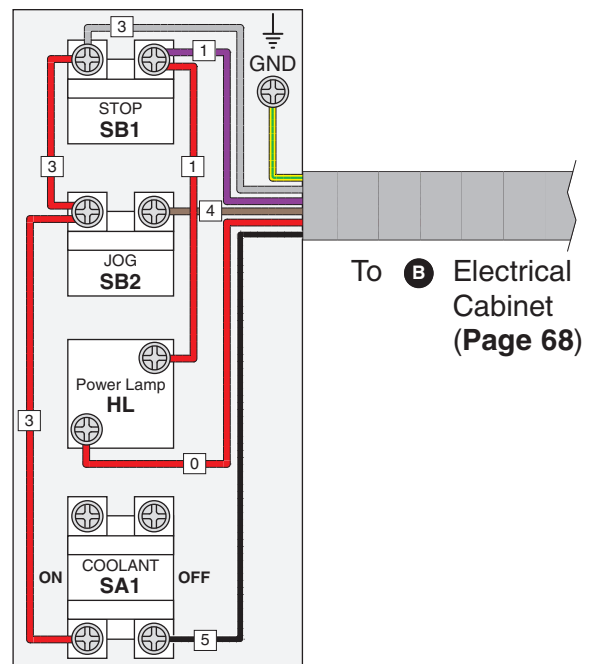
Figure 108. Spindle switches and control panel (viewed from the rear).

I Spindle Switches



To **B** Electrical Cabinet (Page 68)

J Control Panel

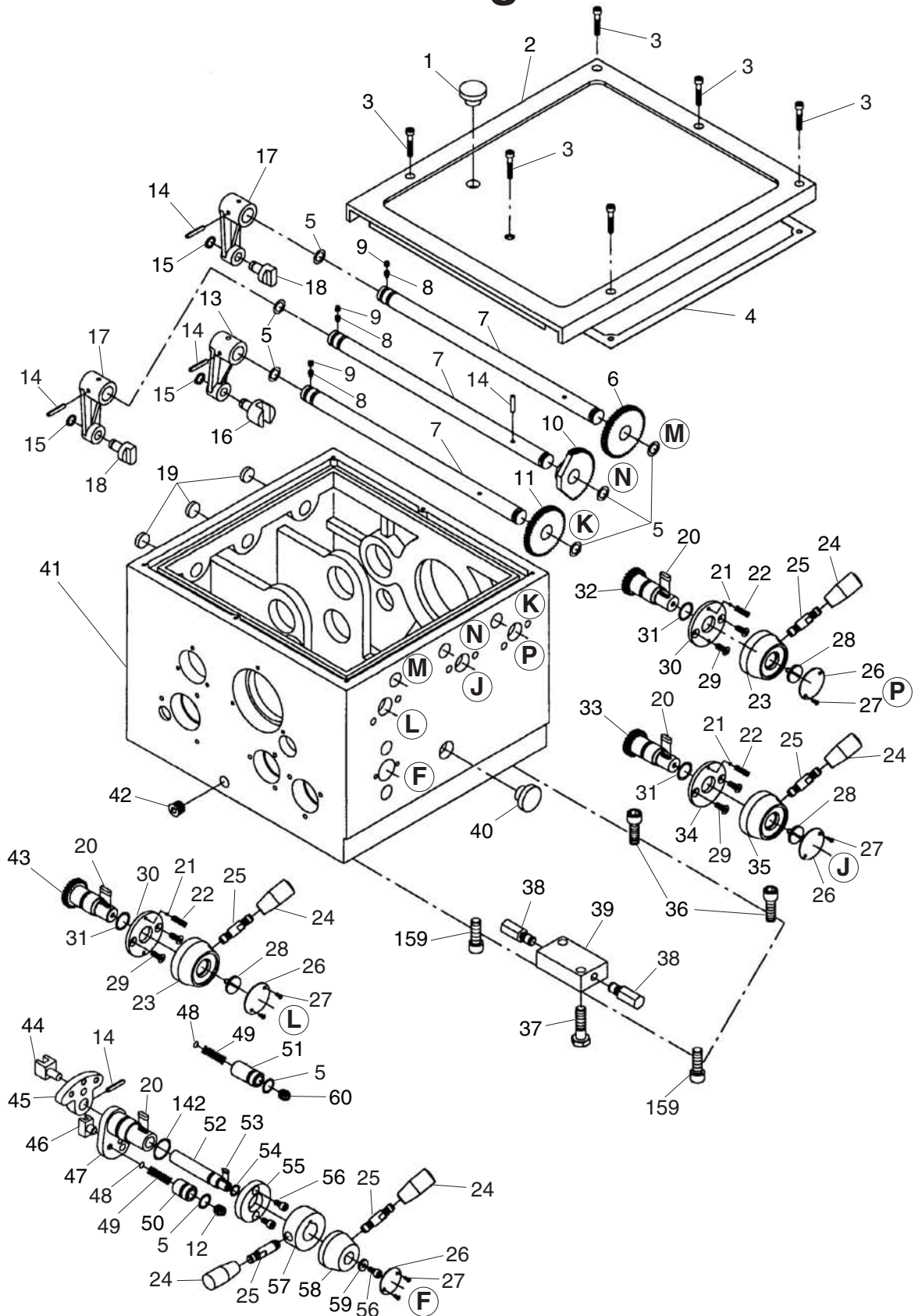


To **B** Electrical Cabinet (Page 68)



SECTION 9: PARTS

Headstock Shifting Breakdown



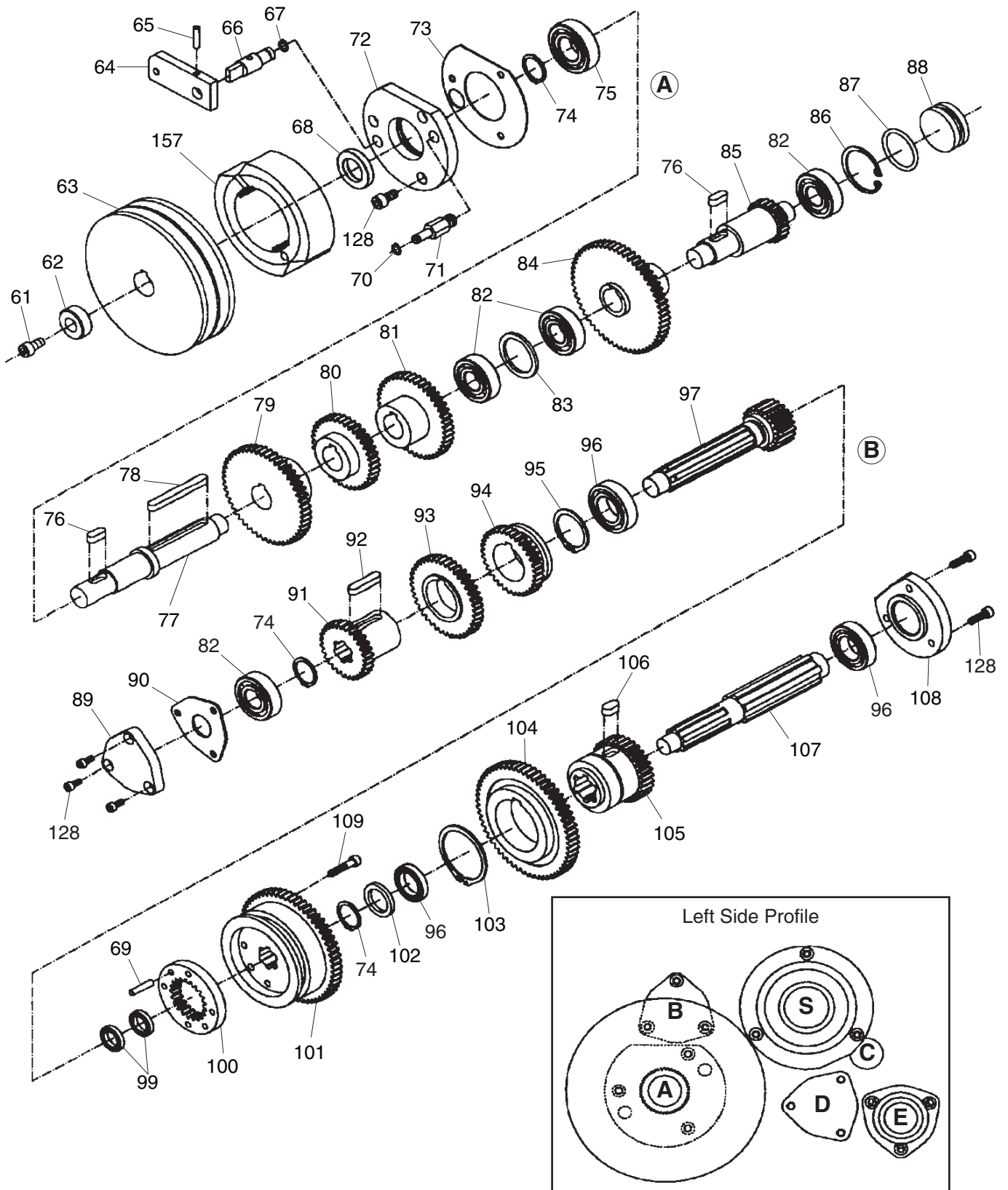
Headstock Shifting Parts List

REF	PART #	DESCRIPTION
1	P0554Z0001	OIL FILL PLUG
2	P0554Z0002	HEADSTOCK COVER
3	PSB06M	CAP SCREW M6-1 X 25
4	P0554Z0004	GASKET
5	P05090251	O-RING 14 X 2.65
6	P0554Z0006	GEAR 38T
7	P0554Z0007	SHAFT
8	PSS01M	SET SCREW M6-1 X 10
9	PN01M	HEX NUT M6-1
10	P0554Z0010	GEAR 48T
11	P0554Z0011	GEAR 43T
12	P0554Z0012	SPECIAL SET SCREW
13	P0554Z0013	SHIFT ARM
14	PRP05M	ROLL PIN 5 X 30
15	PR03M	EXT RETAINING RING 12MM
16	P0554Z0016	SHIFT FORK
17	P0554Z0017	SHIFT ARM
18	P0554Z0018	GEAR SHIFTER
19	P0554Z0019	CASTING PLUG
20	PK08M	KEY 5 X 5 X 16
21	P0554Z0021	STEEL BALL 8MM
22	P0554Z0022	COMPRESSION SPRING
23	P0554Z0023	HANDLE HUB
24	P0554Z0024	HANDLE KNOB
25	P0554Z0025	HANDLE LEVER
26	P0554Z0026	LEVER NAME PLATE
27	PS12M	PHLP HD SCR M3-.5 X 6
28	P0554Z0028	HUB SCREW
29	PFH02M	FLAT HD SCR M6-1 X 12
30	P0554Z0030	END CAP
31	P5960083	O-RING 19 X 2.65

REF	PART #	DESCRIPTION
32	P0554Z0032	GEAR SHAFT 22T
33	P0554Z0033	GEAR SHAFT 17T
34	P0554Z0034	END CAP
35	P0554Z0035	HANDLE HUB
36	PSB92M	CAP SCREW M12-1.75 X 40
37	P0554Z0037	ALIGNMENT BOLT M10-1.5 X 40
38	P0554Z0038	SPECIAL ALIGNMENT BOLT
39	P0554Z0039	ALIGNMENT BLOCK
40	P0554Z0040	OIL SIGHT GLASS
41	P0554Z0041	HEADSTOCK CASTING
42	P0554Z0042	OIL DRAIN PLUG
43	P0554Z0043	GEAR SHAFT 27T
44	P0554Z0044	SHIFT FORK
45	P0554Z0045	SHIFT CRANK
46	P0554Z0046	SHIFT FORK
47	P0554Z0047	SHIFT CRANK
48	P0554Z0048	STEEL BALL 10MM
49	P0554Z0049	COMPRESSION SPRING
50	P0554Z0050	SHAFT
51	P0554Z0051	SHAFT
52	P0554Z0052	SHAFT
53	PK05M	KEY 4 X 4 X 10
54	P0554Z0054	O-RING 10.6 X 2.65
55	P0554Z0055	END CAP
56	PSB26M	CAP SCREW M6-1 X 12
57	P0554Z0057	HANDLE HUB
58	P0554Z0058	HANDLE HUB
59	P0554Z0059	SPECIAL FLAT WASHER
60	P0554Z0060	SPECIAL SET SCREW
142	P0554Z0142	O-RING 25 X 2.65
159	PSB111M	CAP SCREW M12-1.75 X 35



Headstock Gearing Breakdown



Headstock Gearing Parts List

REF	PART #	DESCRIPTION
61	PSB11M	CAP SCREW M8-1.25 X 16
62	P0554Z0062	SPECIAL FLAT WASHER
63	P0554Z0063	PULLEY
64	P0554Z0064	BRAKE BLOCK
65	P0554Z0065	PIN 5 X 16
66	P0554Z0066	SHAFT
67	PR03M	EXT RETAINING RING 12MM
68	P0554Z0068	SPACER SD25 X 45 X 7
69	P0554Z0069	PIN 6 X 26
70	PR39M	EXT RETAINING RING 8MM
71	P0554Z0071	SHAFT
72	P0554Z0072	END CAP
73	P0554Z0073	GASKET
74	PR11M	EXT RETAINING RING 25MM
75	P0554Z0075	BALL BEARING 6205/P5
76	PK107M	KEY 8 X 8 X 20
77	P0554Z0077	SHAFT
78	P0554Z0078	KEY 8 X 8 X 72
79	P0554Z0079	GEAR 50T
80	P0554Z0080	GEAR 37T
81	P0554Z0081	GEAR 43T
82	P0554Z0082	BALL BEARING 6204/P5
83	P0554Z0083	SPACER
84	P0554Z0084	GEAR 57T
85	P0554Z0085	GEAR SHAFT 20T
86	PR25M	INT RETAINING RING 47MM

REF	PART #	DESCRIPTION
87	P0554Z0087	O-RING 40 X 2.65
88	P0554Z0088	CASTING PLUG
89	P0554Z0089	END CAP
90	P0554Z0090	GASKET
91	P0554Z0091	GEAR SHAFT 28T
92	PK121M	KEY 8 X 8 X 38
93	P0554Z0093	GEAR 41T
94	P0554Z0094	GEAR 34T
95	PR68M	EXT RETAINING RING 40MM
96	P0554Z0096	BALL BEARING 6005/P5
97	P0554Z0097	GEAR SHAFT 21T
98	PR18M	EXT RETAINING RING 17MM
99	P0554Z0099	BALL BEARING 61803/P5
100	P0554Z0100	GEAR 21T
101	P0554Z0101	GEAR 58T
102	P0554Z0102	SPACER
103	PR78M	EXT RETAINING RING 55MM
104	P0554Z0104	GEAR 59T
105	P0554Z0105	GEAR 31T
106	PK122M	KEY 10 X 10 X 18
107	P0554Z0107	SPLINE SHAFT
108	P0554Z0108	END CAP
109	PSB48M	CAP SCREW M6-1 X 35
128	PSB27M	CAP SCREW M6-1 X 14
157	P0554Z0157	BREAK SHOE ASSEMBLY



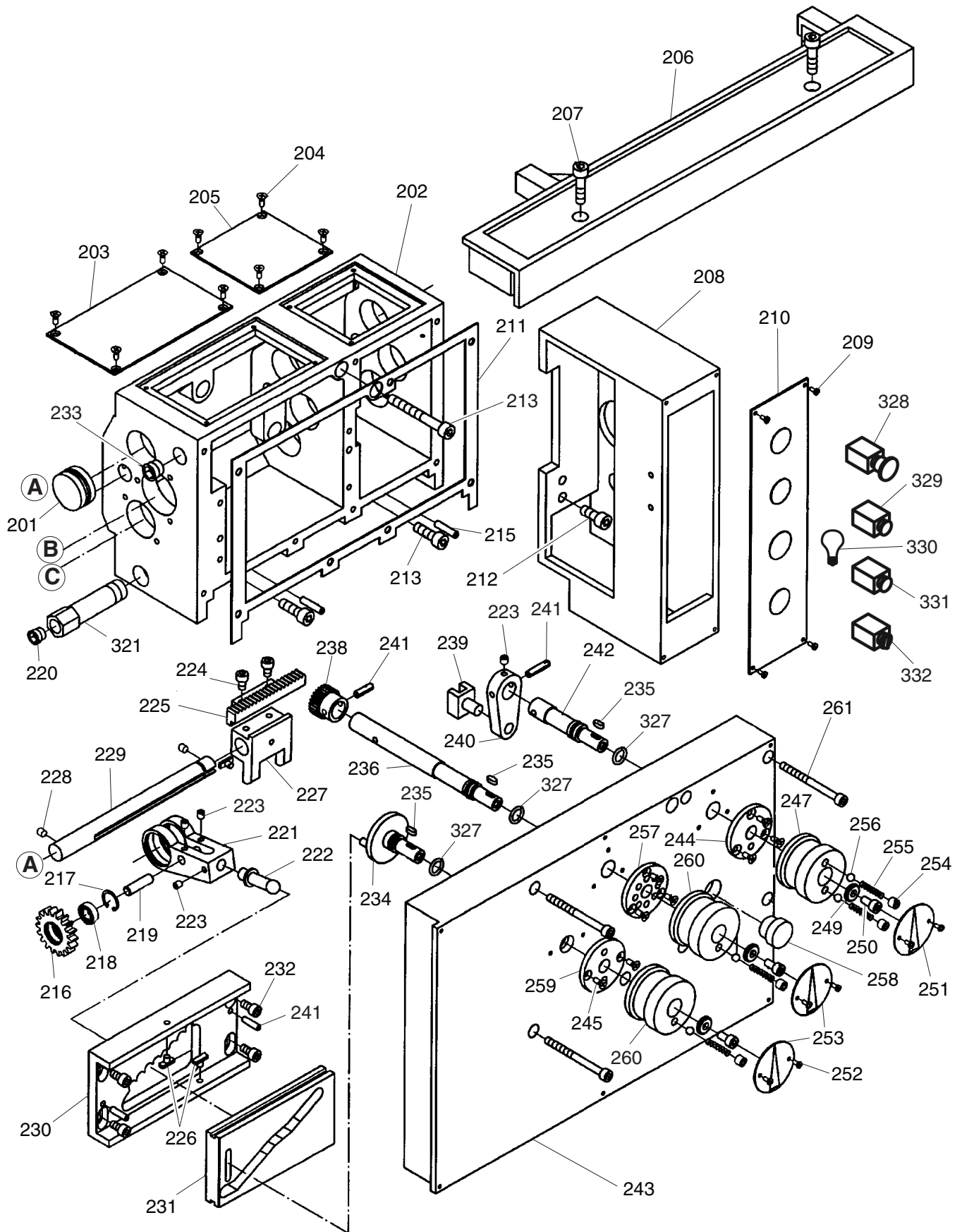
Headstock Spindle Parts List

REF	PART #	DESCRIPTION
61	PSB11M	CAP SCREW M8-1.25 X 16
74	PR11M	EXT RETAINING RING 25MM
82	P0554Z0082	BALL BEARING 6204/P5
89	P0554Z0089	END CAP
90	P0554Z0090	GASKET
95	PR68M	EXT RETAINING RING 40MM
96	P0554Z0096	BALL BEARING 6005/P5
103	PR78M	EXT RETAINING RING 55MM
110	PSB01M	CAP SCREW M6-1 X 16
111	P0554Z0111	END CAP
112	P0554Z0112	GASKET
113	PSB33M	CAP SCREW M5-.8 X 12
114	P0554Z0114	LOCK COLLAR
115	P0554Z0115	TAP. ROLLER BEARING 32011/P5
116	P0554Z0116	GEAR 38T
117	P0554Z0117	LOCK COLLAR
118	P0554Z0118	GEAR 59T
119	PSB15M	CAP SCREW M5-.8 X 20
120	P0554Z0120	GEAR 87T
121	P0554Z0121	BUSHING
122	P0554Z0122	TAP. ROLLER BEARING 30212/P5
123	P0554Z0123	GASKET
124	P0554Z0124	END CAP
125	PSB06M	CAP SCREW M6-1 X 25
126	PK42M	KEY 6 X 6 X 30
127	PK123M	KEY 10 X 10 X 55
128	PSB27M	CAP SCREW M6-1 X 14
129	P0554Z0129	COMPRESSION SPRING

REF	PART #	DESCRIPTION
130	P0554Z0130	BEVELED PIN
131	P0554Z0131	CAMLOCK
132	P0554Z0132	SPINDLE
133	PR09M	EXT RETAINING RING 20MM
134	P0554Z0134	SPACER
135	P0554Z0135	GEAR 32T
136	PR77M	EXT RETAINING RING 37MM
137	P0554Z0137	GEAR 32T
138	PK08M	KEY 5 X 5 X 16
139	P0554Z0139	GEAR SHAFT 32T
140	PSS04M	SET SCREW M6-1 X 12
141	P0554Z0141	SHAFT
142	P0554Z0142	O-RING 25 X 2.65
143	PK42M	KEY 6 X 6 X 30
144	P0554Z0144	GEAR 42T
145	P0554Z0145	SPACER
146	P0554Z0146	GEAR 32T
147	PK49M	KEY 6 X 6 X 55
148	P0554Z0148	GEAR 32T
149	P0554Z0149	BALL BEARING 6004/P5
150	P0554Z0150	CASTING PLUG
151	P0554Z0151	SHAFT
152	P0554Z0152	GEAR 38T
153	P0554Z0153	SPLINE SHAFT
154	P0554Z0154	GASKET
155	P0554Z0155	END CAP
156	P0554Z0156	SPACER
158	P0554Z0158	COLLAR



Gearbox Shifting Breakdown



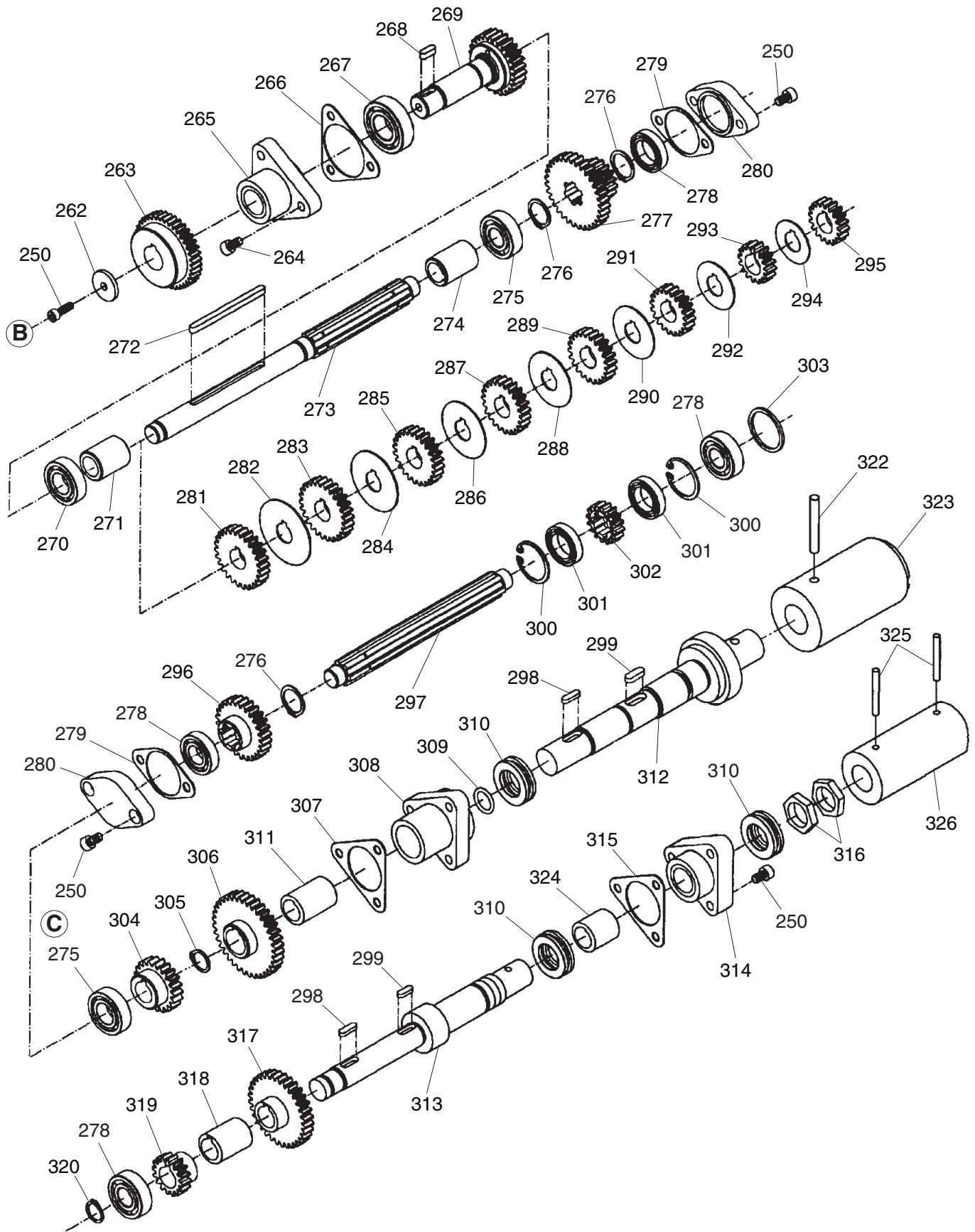
Gearbox Shifting Parts List

REF	PART #	DESCRIPTION
201	P0554Z0201	CASTING PLUG
202	P0554Z0202	GEARBOX CASTING
203	P0554Z0203	TOP LEFT GEARBOX COVER
204	PFH19M	FLAT HD SCR M4-.7 X 10
205	P0554Z0205	TOP RIGHT GEARBOX COVER
206	P0554Z0206	TOP FRONT GEARBOX COVER
207	PSB40M	CAP SCREW M8-1.25 X 35
208	P0554Z0208	CONTROL PANEL HOUSING
209	PS12M	PHLP HD SCR M3-.5 X 6
210	P0554Z0210	CONTROL PANEL FRONT COVER
211	P0554Z0211	GASKET
212	PSB12M	CAP SCREW M8-1.25 X 40
213	PSB31M	CAP SCREW M8-1.25 X 25
215	P0554Z0215	PIN 5 X 28
216	P0554Z0216	GEAR 16T
217	PR79M	INT RETAINING RING 19MM
218	P698ZZ	BALL BEARING 698ZZ
219	P0554Z0219	SHAFT
220	P0554Z0220	OIL DRAIN PLUG
221	P0554Z0221	SHIFTER
222	P0554Z0222	SHAFT
223	PSS03M	SET SCREW M6-1 X 8
224	PSB02M	CAP SCREW M6-1 X 20
225	P0554Z0225	RACK
226	P0554Z0226	SHIFT KEY
227	P0554Z0227	SHIFT FORK
228	PSS03M	SET SCREW M6-1 X 8
229	P0554Z0229	SHAFT
230	P0554Z0230	LOCATING PLATE
231	P0554Z0231	CONTROL PLATE
232	PSB26M	CAP SCREW M6-1 X 12
233	P0554Z0233	OIL FILL PLUG

REF	PART #	DESCRIPTION
234	P0554Z0234	SHIFT HUB
235	PK05M	KEY 4 X 4 X 10
236	P0554Z0236	SHAFT
238	P0554Z0238	GEAR SHAFT 26T
239	P0554Z0239	SHIFT FORK
240	P0554Z0240	SHIFT ARM
241	P0554Z0241	PIN 5 X 20
242	P0554Z0242	SHAFT
243	P0554Z0243	GEARBOX FRONT COVER
244	P0554Z0244	LOCATING DISK
245	PFH07M	FLAT HD SCR M5-.8 X 10
247	P0554Z0247	SHIFT HUB
249	P0554Z0249	SPECIAL WASHER
250	PSB01M	CAP SCREW M6-1 X 16
251	P0554Z0251	INDICATOR DISK
252	PS12M	PHLP HD SCR M3-.5 X 6
253	P0554Z0253	INDICATOR DISK
254	PSS20M	SET SCREW M8-1.25 X 8
255	P0554Z0255	COMPRESSION SPRING
256	P0554Z0256	STEEL BALL 6.5MM
257	P0554Z0257	LOCATING DISK
258	P0554Z0258	OIL SIGHT GLASS
259	P0554Z0259	LOCATING DISK
260	P0554Z0260	SHIFT HUB
261	PSB48M	CAP SCREW M6-1 X 35
321	P0554Z0321	OIL DRAIN PIPE
327	P0554Z0327	SPECIAL O-RING
328	P0554Z0328	STOP BUTTON ASSEMBLY
329	P0554Z0329	JOG BUTTON ASSEMBLY
330	P0554Z0330	110V POWER LAMP BULB
331	P0554Z0331	POWER LAMP ASSEMBLY
332	P0554Z0332	COOLANT SWITCH ASSEMBLY



Gearbox Gearing Breakdown



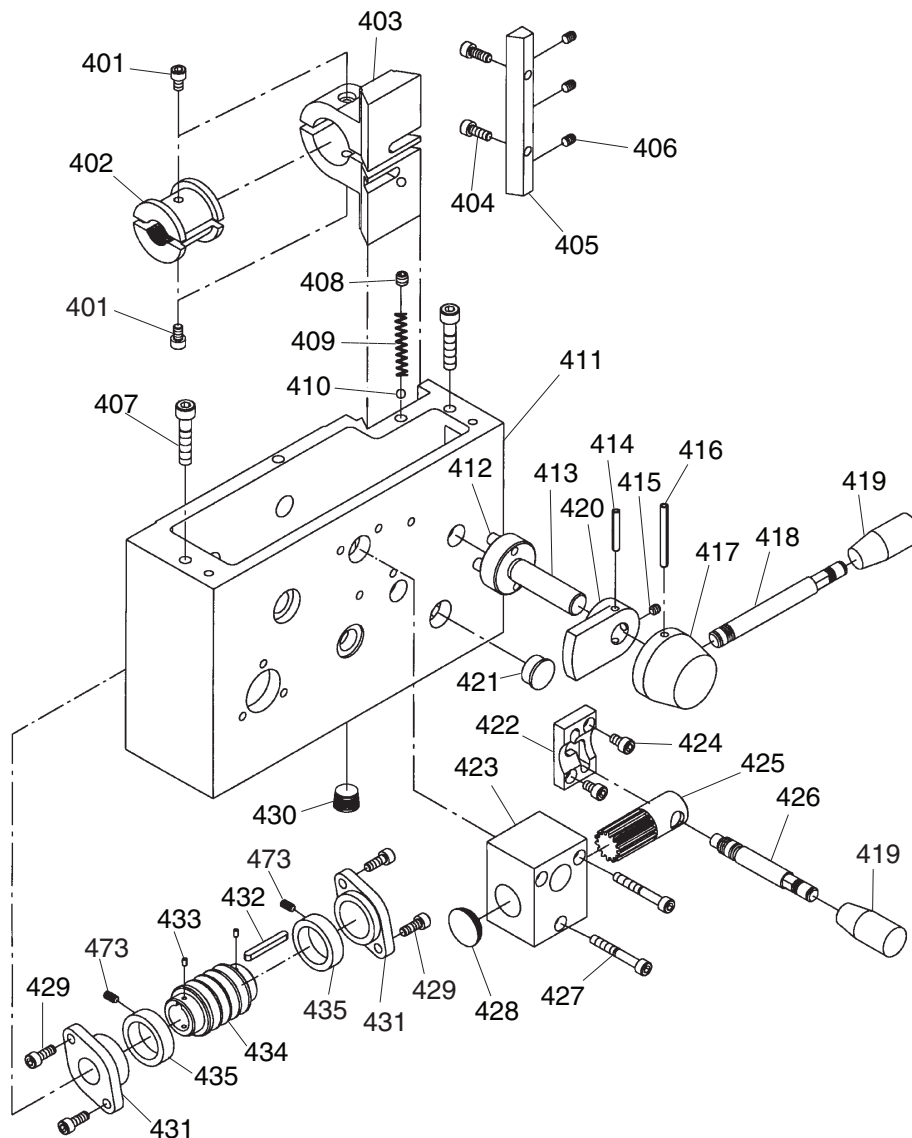
Gearbox Gearing Parts List

REF	PART #	DESCRIPTION
250	PSB01M	CAP SCREW M6-1 X 16
262	P0554Z0262	SPECIAL FLAT WASHER
263	P0554Z0263	GEAR 52T
264	PSB02M	CAP SCREW M6-1 X 20
265	P0554Z0265	END CAP
266	P0554Z0266	GASKET
267	P0554Z0149	BALL BEARING 6004/P5
268	PK19M	KEY 5 X 5 X 14
269	P0554Z0269	GEAR SHAFT
270	P0554Z0270	BALL BEARING 16002/P5
271	P0554Z0271	SHAFT COLLAR
272	PK120M	KEY 5 X 5 X 75
273	P0554Z0273	SHAFT
274	P0554Z0274	SHAFT COLLAR
275	P0554Z0275	BALL BEARING 6003/P5
276	PR09M	EXT RETAINING RING 20MM
277	P0554Z0277	GEAR 16T/32T
278	P0554Z0278	BALL BEARING 6202/P5
279	P0554Z0279	GASKET
280	P0554Z0280	END CAP
281	P0554Z0281	GEAR 28T
282	P0554Z0282	GEAR WASHER
283	P0554Z0283	GEAR 26T
284	P0554Z0284	GEAR WASHER
285	P0554Z0285	GEAR 24T
286	P0554Z0286	GEAR WASHER
287	P0554Z0287	GEAR 23T
288	P0554Z0288	GEAR WASHER
289	P0554Z0289	GEAR 22T
290	P0554Z0290	GEAR WASHER
291	P0554Z0291	GEAR 20T
292	P0554Z0292	GEAR WASHER
293	P0554Z0293	GEAR 18T

REF	PART #	DESCRIPTION
294	P0554Z0294	GEAR WASHER
295	P0554Z0295	GEAR 16T
296	P0554Z0296	GEAR 26T
297	P0554Z0297	SPLINE SHAFT
298	PK19M	KEY 5 X 5 X 14
299	PK101M	KEY 6 X 6 X 14
300	PR29M	INT RETAINING RING 32MM
301	P0554Z0301	BALL BEARING 61804/P5
302	P0554Z0302	GEAR 16T
303	P0554Z0303	SPACER
304	P0554Z0304	GEAR 21T
305	PR05M	EXT RETAINING RING 15MM
306	P0554Z0306	GEAR 26T
307	P0554Z0307	GASKET
308	P0554Z0308	END CAP
309	P40021104B	O-RING 15 X 2.65
310	P0554Z0310	BALL BEARING 8104/P5
311	P0554Z0311	COLLAR
312	P0554Z0312	SHAFT
313	P0554Z0313	SHAFT
314	P0554Z0314	END CAP
315	P0554Z0315	GASKET
316	P0554Z0316	SPECIAL HEX NUT
317	P0554Z0317	GEAR 32T
318	P0554Z0318	COLLAR
319	P0554Z0319	GEAR 16T
320	PR07M	EXT RETAINING RING 18MM
322	P0554Z0322	PIN 5 X 40
323	P0554Z0323	SHAFT SLEEVE
324	P0554Z0324	COLLAR
325	P0554Z0325	PIN 4 X 30
326	P0554Z0326	SHAFT SLEEVE



Apron Controls

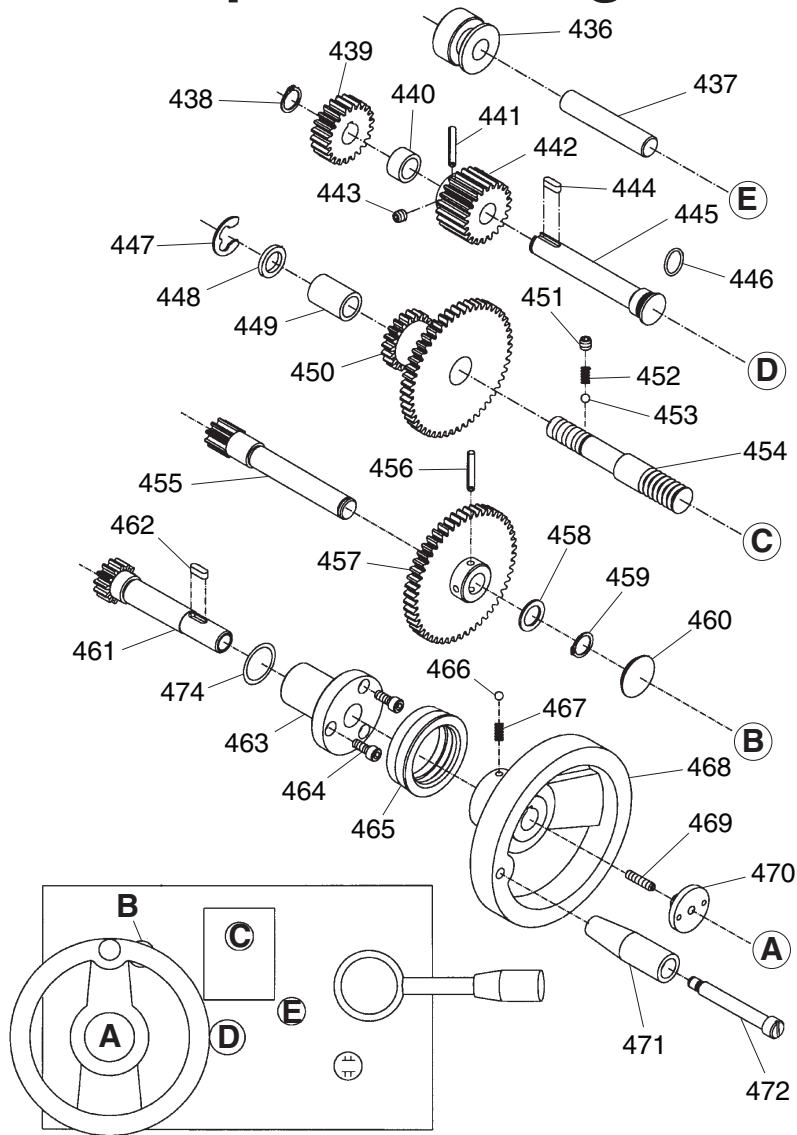


REF	PART #	DESCRIPTION
401	PSB04M	CAP SCREW M6-1 X 10
402	P0554Z0402	HALF-NUT ASSEMBLY
403	P0554Z0403	HALF-NUT BRACKET
404	PSB01M	CAP SCREW M6-1 X 16
405	P0554Z0405	HALF-NUT GIB
406	PSS01M	SET SCREW M6-1 X 10
407	PSB12M	CAP SCREW M8-1.25 X 40
408	PSS20M	SET SCREW M8-1.25 X 8
409	P0554Z0409	COMPRESSION SPRING
410	P0554Z0410	STEEL BALL 6MM
411	P0554Z0411	APRON CASTING
412	P0554Z0412	SPECIAL PIN
413	P0554Z0413	HALF-NUT CAM
414	P0554Z0414	PIN 5 X 35
415	PSS02M	SET SCREW M6-1 X 6
416	P0554Z0416	PIN 5 X 50
417	P0554Z0417	HANDLE HUB
418	P0554Z0418	HANDLE LEVER
419	P0554Z0419	HANDLE KNOB
420	P0554Z0420	SAFETY CATCH
421	P0554Z0421	OIL SIGHT GLASS
422	P0554Z0422	BRACKET
423	P0554Z0423	BLOCK
424	PSB26M	CAP SCREW M6-1 X 12
425	P0554Z0425	SPLINE SHAFT
426	P0554Z0426	HANDLE LEVER
427	PSB30M	CAP SCREW M6-1 X 45
428	P0554Z0428	PLUG
429	PSB01M	CAP SCREW M6-1 X 16
430	P0554Z0430	OIL DRAIN PLUG
431	P0554Z0431	END CAP
432	PK119M	KEY 5 X 5 X 56
433	P0554Z0433	PIN 3 X 5
434	P0554Z0434	WORM
435	P0554Z0435	LOCK COLLAR
473	PSS05M	SET SCREW M5-.8 X 10

REF	PART #	DESCRIPTION
419	P0554Z0419	HANDLE KNOB
420	P0554Z0420	SAFETY CATCH
421	P0554Z0421	OIL SIGHT GLASS
422	P0554Z0422	BRACKET
423	P0554Z0423	BLOCK
424	PSB26M	CAP SCREW M6-1 X 12
425	P0554Z0425	SPLINE SHAFT
426	P0554Z0426	HANDLE LEVER
427	PSB30M	CAP SCREW M6-1 X 45
428	P0554Z0428	PLUG
429	PSB01M	CAP SCREW M6-1 X 16
430	P0554Z0430	OIL DRAIN PLUG
431	P0554Z0431	END CAP
432	PK119M	KEY 5 X 5 X 56
433	P0554Z0433	PIN 3 X 5
434	P0554Z0434	WORM
435	P0554Z0435	LOCK COLLAR
473	PSS05M	SET SCREW M5-.8 X 10



Apron Gearing

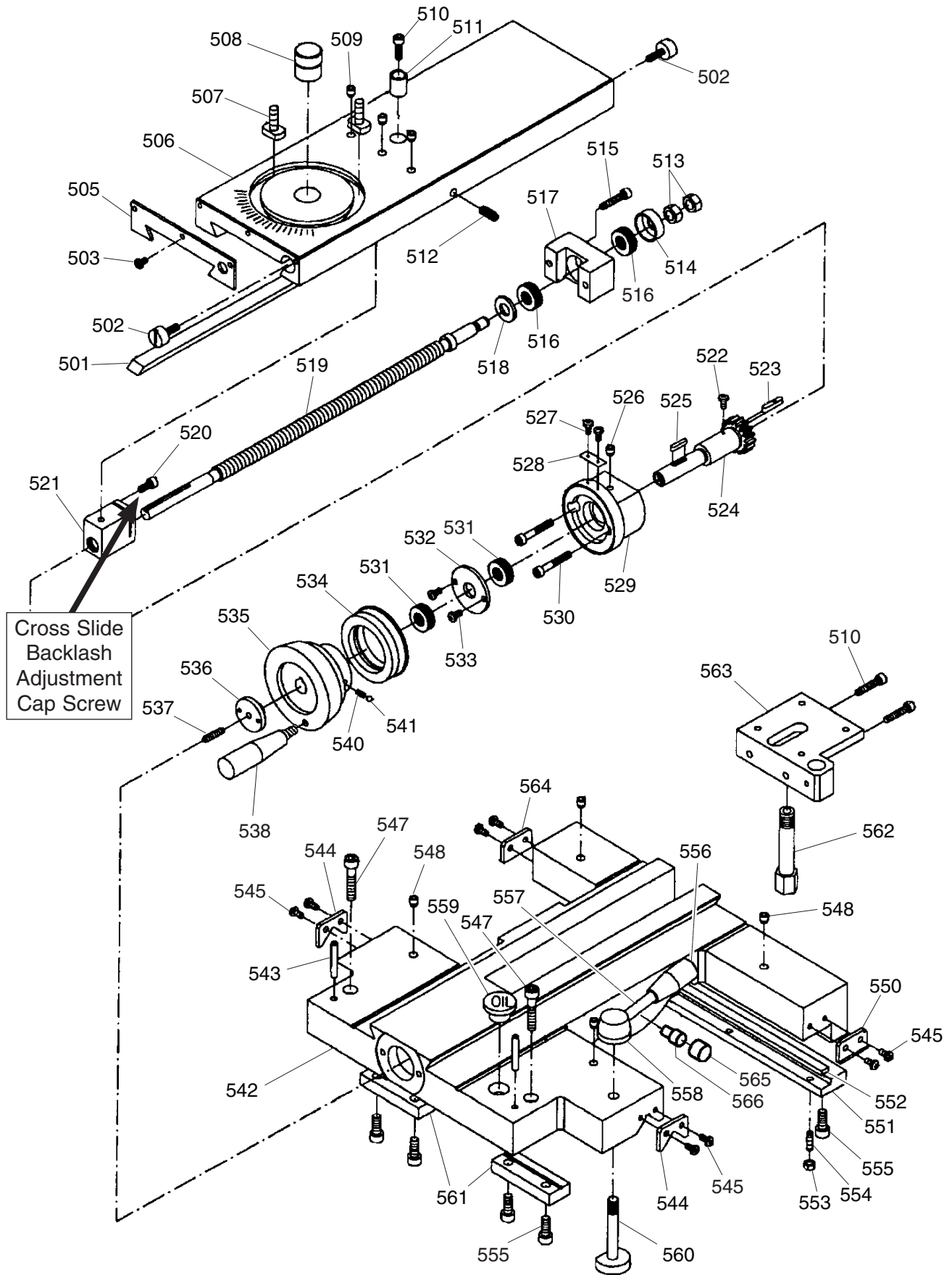


REF	PART #	DESCRIPTION
436	P0554Z0436	BUSHING
437	P0554Z0437	SHAFT
438	PR06M	EXT RETAINING RING 16MM
439	P0554Z0439	GEAR 22T
440	P0554Z0440	COLLAR
441	P0554Z0441	PIN 5 X 35
442	P0554Z0442	GEAR 24T
443	PSS02M	SET SCREW M6-1 X 6
444	PK20M	KEY 5 X 5 X 15
445	P0554Z0445	SHAFT
446	P0554Z0446	O-RING 17 X 1.8
447	PEC12M	E-CLIP 12MM
448	P0554Z0448	BUSHING
449	P0554Z0449	SLEEVE
450	P0554Z0450	CLUSTER GEAR 50T/20T
451	PSS20M	SET SCREW M8-1.25 X 8
452	P0554Z0452	COMPRESSION SPRING
453	P0554Z0410	STEEL BALL 6MM
454	P0554Z0454	SHAFT

REF	PART #	DESCRIPTION
455	P0554Z0455	SHAFT
456	P0554Z0456	PIN 5 X 30
457	P0554Z0457	GEAR 50T
458	P0554Z0458	SPACER
459	PR06M	EXT RETAINING RING 16MM
460	P0554Z0460	PLUG
461	P0554Z0461	GEAR SHAFT 18T
462	PK20M	KEY 5 X 5 X 15
463	P0554Z0463	WHEEL FLANGE
464	PSB01M	CAP SCREW M6-1 X 16
465	P0554Z0465	GRADUATED DIAL
466	P0554Z0410	STEEL BALL 6MM
467	P0554Z0467	COMPRESSION SPRING
468	P0554Z0468	HANDWHEEL
469	PSS12M	SET SCREW M6-1 X 25
470	P0554Z0470	HANDWHEEL SCREW
471	P0554Z0471	HANDLE
472	P0554Z0472	HANDLE SCREW
474	P05094038	O-RING 25.8 X 3.55



Saddle & Cross Slide Breakdown



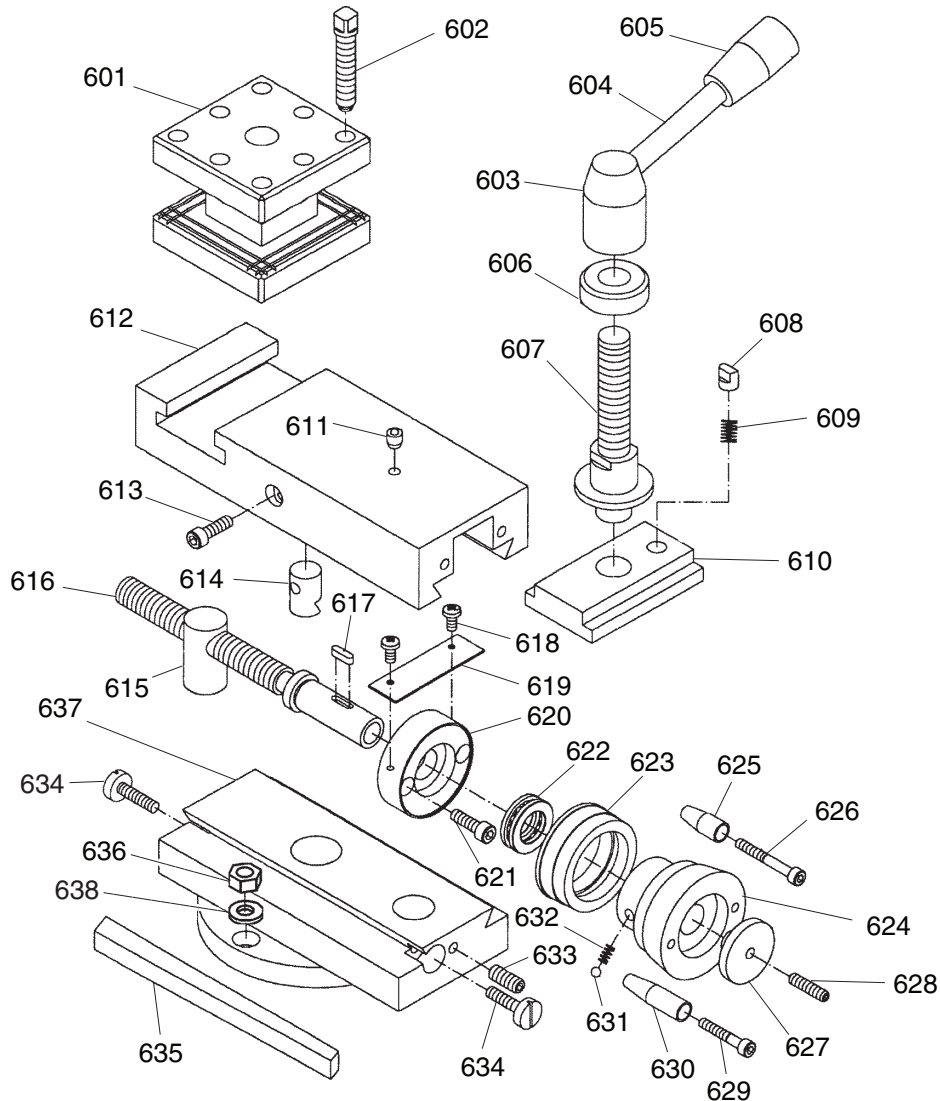
Saddle & Cross Slide Parts List

REF	PART #	DESCRIPTION
501	P0554Z0501	CROSS SLIDE GIB
502	P0554Z0502	GIB ADJUSTMENT SCREW
503	PS09M	PHLP HD SCR M5-.8 X 10
505	P0554Z0505	WIPER PLATE
506	P0554Z0506	CROSS SLIDE BODY
507	P0554Z0507	T-BOLT
508	P0554Z0508	HUB
509	P0554Z0509	BALL OILER 8MM
510	PSB02M	CAP SCREW M6-1 X 20
511	P0554Z0511	SLEEVE
512	PSS20M	SET SCREW M8-1.25 X 8
513	PN02M	HEX NUT M10-1.5
514	P0554Z0514	BEARING CAP
515	PSB07M	CAP SCREW M6-1 X 30
516	P8101	THRUST BEARING 8101
517	P0554Z0517	BLOCK
518	P0554Z0518	SPACER
519	P0554Z0519	CROSS SLIDE LEADSCREW
520	PSB26M	CAP SCREW M6-1 X 12
521	P0554Z0521	LEADSCREW NUT
522	PS49M	PHLP HD SCR M3-.5 X 5
523	PK23M	KEY 5 X 5 X 25
524	P0554Z0524	GEAR SHAFT 20T
525	PK48M	KEY 4 X 4 X 20
526	P0554Z0526	BALL OILER 6MM
527	PS12M	PHLP HD SCR M3-.5 X 6
528	P0554Z0528	INDEX PLATE
529	P0554Z0529	BEARING HOUSING
530	PSB29M	CAP SCREW M6-1 X 40
531	P8102	THRUST BEARING 8102
532	P0554Z0532	END CAP

REF	PART #	DESCRIPTION
533	PS09M	PHLP HD SCR M5-.8 X 10
534	P0554Z0534	GRADUATED DIAL
535	P0554Z0535	HANDWHEEL
536	P0554Z0536	HANDWHEEL SCREW
537	PSS12M	SET SCREW M6-1 X 25
538	P0554Z0538	HANDLE
540	P0554Z0540	COMPRESSION SPRING
541	P0554Z0410	STEEL BALL 6MM
542	P0554Z0542	SADDLE
543	P0554Z0543	PIN 6 X 40
544	P0554Z0544	WIPER PLATE
545	PS09M	PHLP HD SCR M5-.8 X 10
547	PSB45M	CAP SCREW M8-1.25 X 45
548	P0554Z0509	BALL OILER 8MM
550	P0554Z0550	WIPER PLATE
551	P0554Z0551	REAR PRESSURE PLATE
552	P0554Z0552	SADDLE GIB
553	PLN03M	LOCK NUT M6-1
554	PSS25M	SET SCREW M6-1 X 20
555	PSB14M	CAP SCREW M8-1.25 X 20
556	P0554Z0556	HANDLE KNOB M10-1.5
557	P0554Z0557	HANDLE LEVER
558	P0554Z0558	HANDLE HUB
559	P0554Z0559	OIL FILL CAP
560	P0554Z0560	LOCK STUD
561	P0554Z0561	FRONT PRESSURE PLATE
562	P0554Z0562	STRAIN RELIEF
563	P0554Z0563	LAMP BRACKET
564	P0554Z0564	WIPER PLATE
565	P0554Z0565	SPECIAL PIN
566	P0554Z0566	SLEEVE



Compound Slide & Tool Post

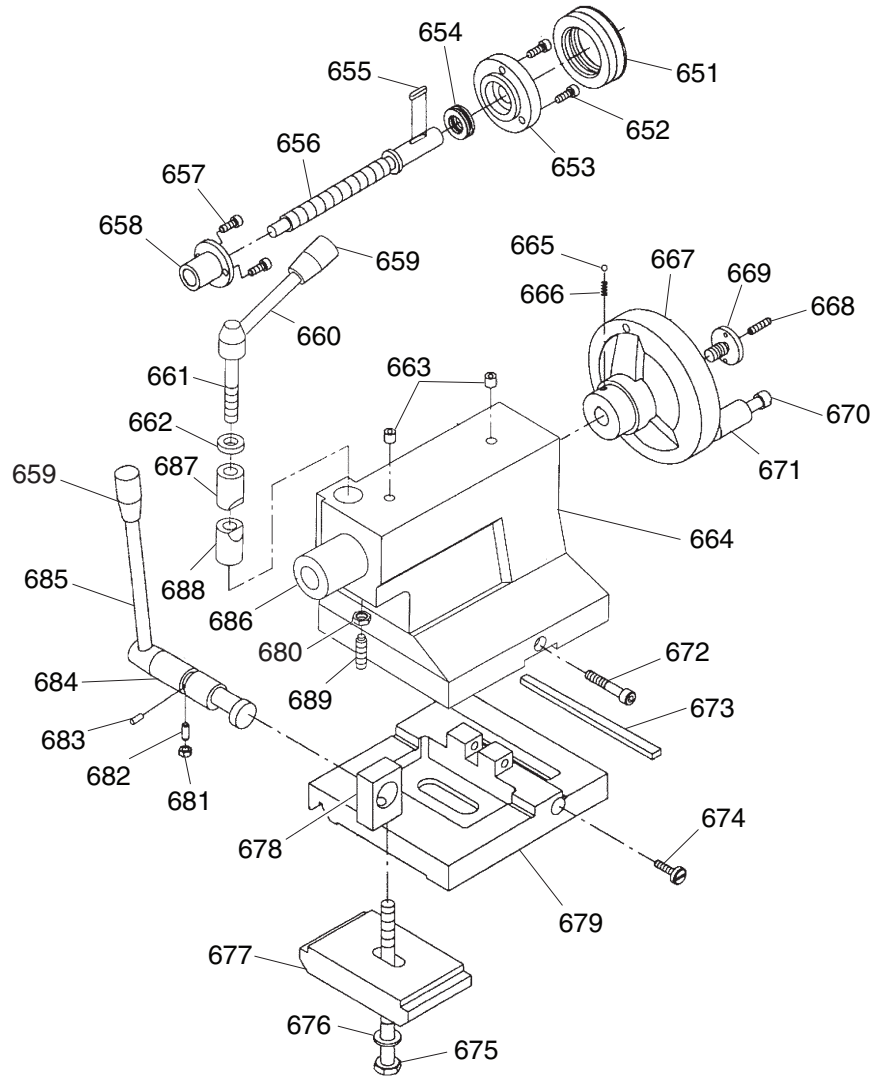


REF	PART #	DESCRIPTION
601	P0554Z0601	TOOL POST BASE
602	P0554Z0602	TOOL POST LOCK SCREW
603	P0554Z0603	HANDLE HUB
604	P0554Z0604	HANDLE LEVER
605	P0554Z0605	HANDLE KNOB
606	P0554Z0606	SPACER
607	P0554Z0607	TOOL POST STUD
608	P0554Z0608	TOOL POST POSITION PIN
609	P0554Z0609	COMPRESSION SPRING
610	P0554Z0610	CLAMP BAR
611	P0554Z0509	BALL OILER 8MM
612	P0554Z0612	COMPOUND SLIDE
613	PSB02M	CAP SCREW M6-1 X 20
614	P0554Z0614	POSITIONING PIN
615	P0554Z0615	LEADSCREW NUT
616	P0554Z0616	COMPOUND SLIDE LEADSCREW
617	PK134M	KEY 4 X 4 X 14
618	PS12M	PHLP HD SCR M3-.5 X 6
619	P0554Z0619	INDEX PLATE

REF	PART #	DESCRIPTION
620	P0554Z0620	BEARING HOUSING
621	PSB02M	CAP SCREW M6-1 X 20
622	P8103	THRUST BEARING 8103
623	P0554Z0623	GRADUATED DIAL
624	P0554Z0624	HANDWHEEL
625	P0554Z0625	HANDLE
626	PSB38M	CAP SCREW M5-.8 X 25
627	P0554Z0627	HANDWHEEL SCREW
628	PSS12M	SET SCREW M6-1 X 25
629	PSB78M	CAP SCREW M5-.8 X 40
630	P0554Z0630	HANDLE
631	P0554Z0410	STEEL BALL 6MM
632	P0554Z0632	COMPRESSION SPRING
633	PSS11M	SET SCREW M6-1 X 16
634	P0554Z0634	GIB ADJUSTMENT SCREW
635	P0554Z0635	COMPOUND SLIDE GIB
636	PN03M	HEX NUT M8-1.25
637	P0554Z0637	SWIVEL SLIDE
638	PW01M	FLAT WASHER 8MM



Tailstock

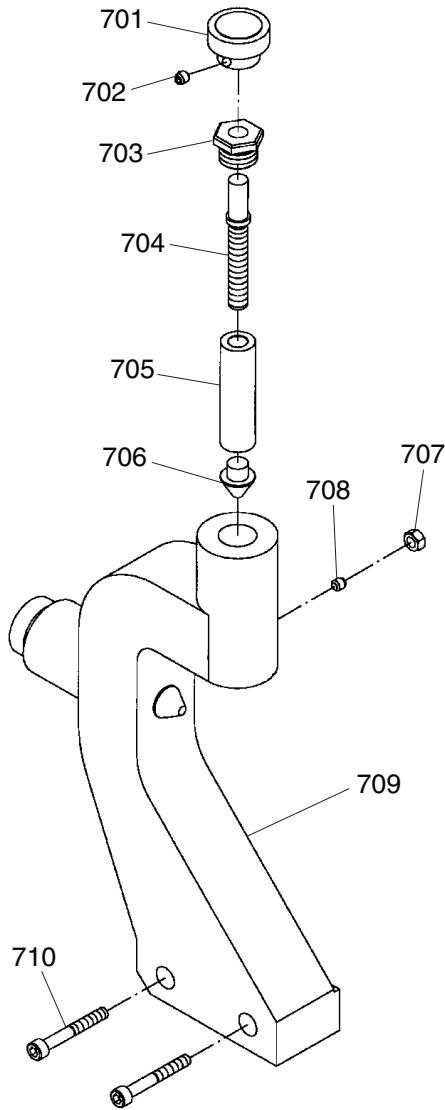


REF	PART #	DESCRIPTION
651	P0554Z0651	GRADUATED DIAL
652	PSB02M	CAP SCREW M6-1 X 20
653	P0554Z0653	BEARING HOUSING
654	P8103	THRUST BEARING 8103
655	PK48M	KEY 4 X 4 X 20
656	P0554Z0656	TAILSTOCK LEADSCREW
657	PSB01M	CAP SCREW M6-1 X 16
658	P0554Z0658	LEADSCREW NUT
659	P0554Z0659	HANDLE KNOB
660	P0554Z0660	HANDLE LEVER
661	P0554Z0661	HANDLE BOLT
662	P0554Z0662	SPACER
663	P0554Z0663	BALL OILER 10MM
664	P0554Z0664	TAILSTOCK CASTING
665	P0554Z0410	STEEL BALL 6MM
666	P0554Z0666	COMPRESSION SPRING
667	P0554Z0667	HANDWHEEL
668	PSS28M	SET SCREW M6-1 X 30
669	P0554Z0669	HANDWHEEL SCREW
670	P0554Z0670	HANDLE SCREW

REF	PART #	DESCRIPTION
671	P0554Z0671	HANDLE
672	PSB128M	CAP SCREW M8-1.25 X 70
673	P0554Z0673	TAILSTOCK GIB
674	P0554Z0674	GIB ADJUSTMENT SCREW
675	PB140M	HEX BOLT M12-1.75 X 70
676	PW06M	FLAT WASHER 12MM
677	P0554Z0677	CLAMP PLATE
678	P0554Z0678	BLOCK
679	P0554Z0679	TAILSTOCK BASE
680	PN02M	HEX NUT M10-1.5
681	PN01M	HEX NUT M6-1
682	PSS11M	SET SCREW M6-1 X 16
683	P0554Z0683	PIN 5 X 10
684	P0554Z0684	ECCENTRIC SHAFT
685	P0554Z0685	LOCK LEVER
686	P0554Z0686	TAILSTOCK QUILL
687	P0554Z0687	UPPER CLAMPING SLEEVE
688	P0554Z0688	LOWER CLAMPING SLEEVE
689	PSS95M	SET SCREW M10-1.5 X 40

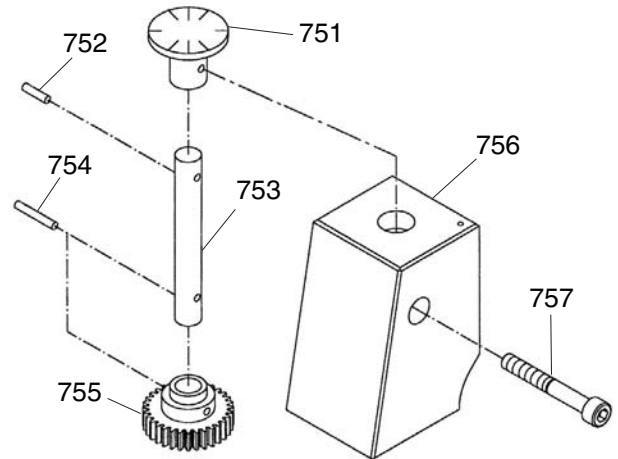


Follow Rest



REF	PART #	DESCRIPTION
701	P0554Z0701	ADJUSTMENT KNOB
702	PSS02M	SET SCREW M6-1 X 6
703	P0554Z0703	BUSHING
704	P0554Z0704	SPECIAL SCREW
705	P0554Z0705	SLEEVE
706	P0554Z0706	BRASS FINGER
707	PN01M	HEX NUT M6-1
708	PSS02M	SET SCREW M6-1 X 6
709	P0554Z0709	FOLLOW REST CASTING
710	PSB30M	CAP SCREW M6-1 X 45

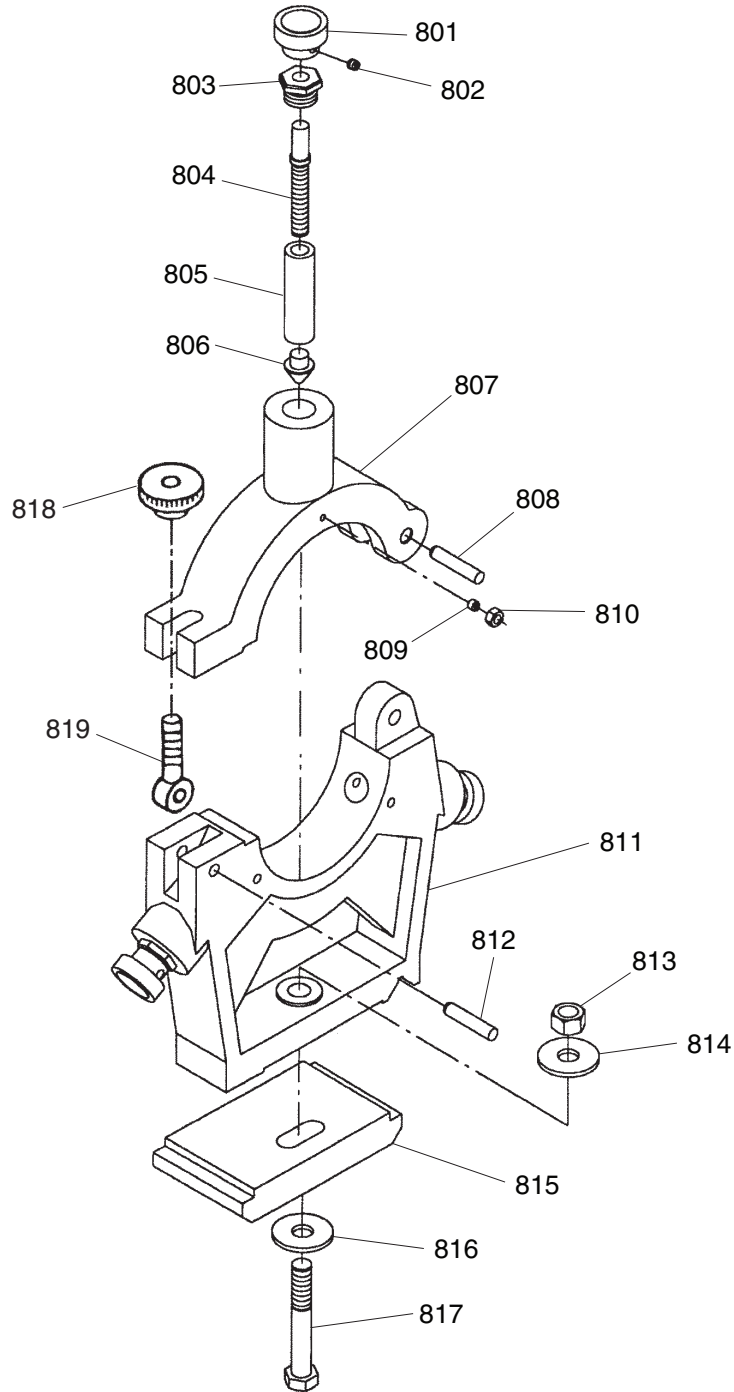
Thread Dial



REF	PART #	DESCRIPTION
751	P0554Z0751	DIAL
752	P0554Z0752	PIN 3 X 12
753	P0554Z0753	SHAFT
754	P0554Z0754	PIN 3 X 20
755	P0554Z0755	GEAR 32T
756	P0554Z0756	THREAD DIAL BODY
757	PSB30M	CAP SCREW M6-1 X 45



Steady Rest

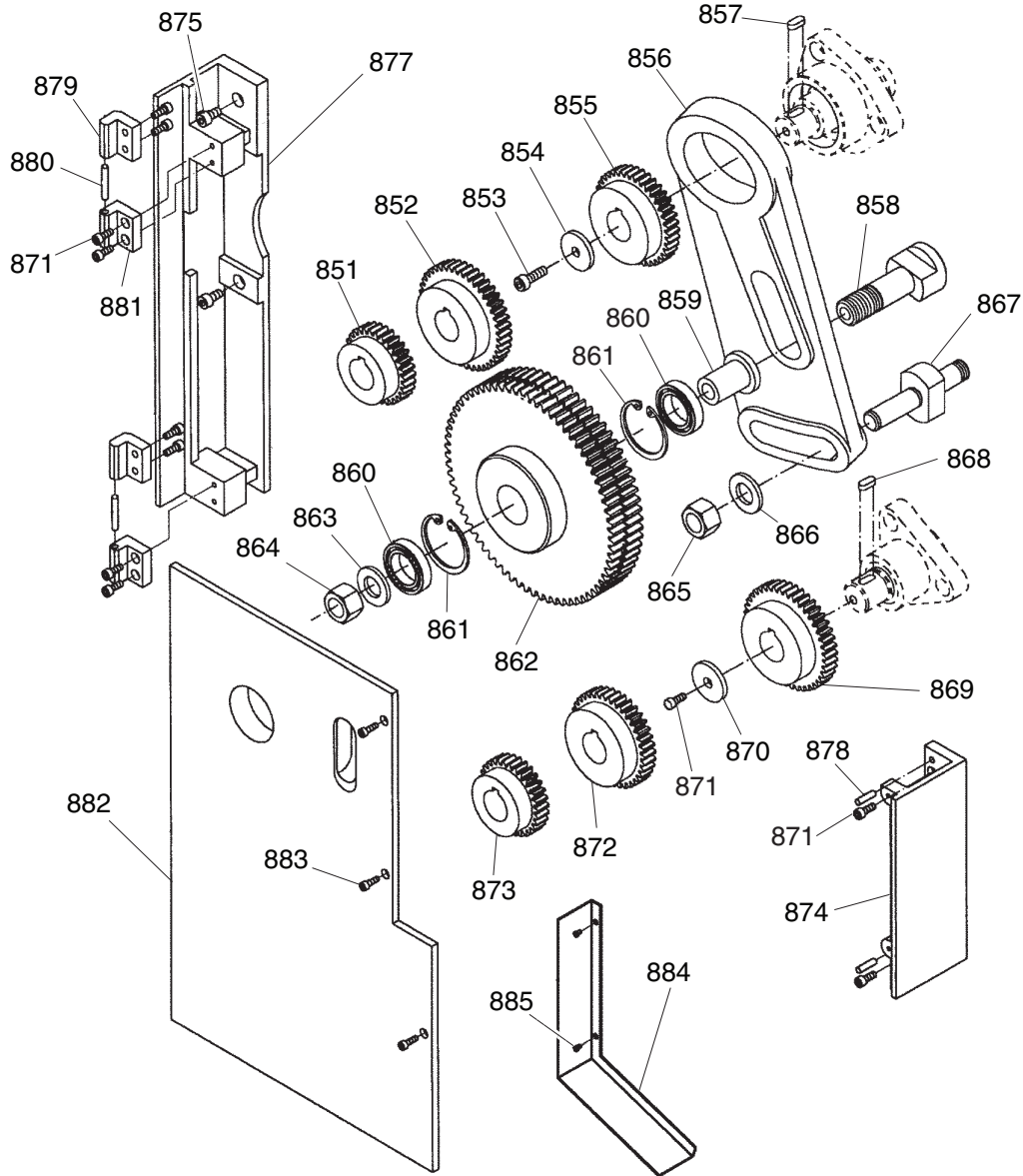


REF	PART #	DESCRIPTION
801	P0554Z0701	ADJUSTMENT KNOB
802	PSS02M	SET SCREW M6-1 X 6
803	P0554Z0803	BUSHING
804	P0554Z0804	ADJUSTMENT SCREW
805	P0554Z0805	SLEEVE
806	P0554Z0706	BRASS FINGER
807	P0554Z0807	UPPER STEADY REST CASTING
808	P0554Z0808	PIN 8 X 40
809	PSS25M	SET SCREW M6-1 X 20
810	PN01M	HEX NUT M6-1

REF	PART #	DESCRIPTION
811	P0554Z0811	LOWER STEADY REST CASTING
812	P0554Z0812	LOCK PIN
813	PN09M	HEX NUT M12-1.75
814	PW06M	FLAT WASHER 12MM
815	P0554Z0815	CLAMP PLATE
816	PW06M	FLAT WASHER 12MM
817	PB141M	HEX BOLT M12-1.75 X 80
818	P0554Z0818	KNURLED KNOB
819	P0554Z0819	LOCK BOLT



Change & End Gears

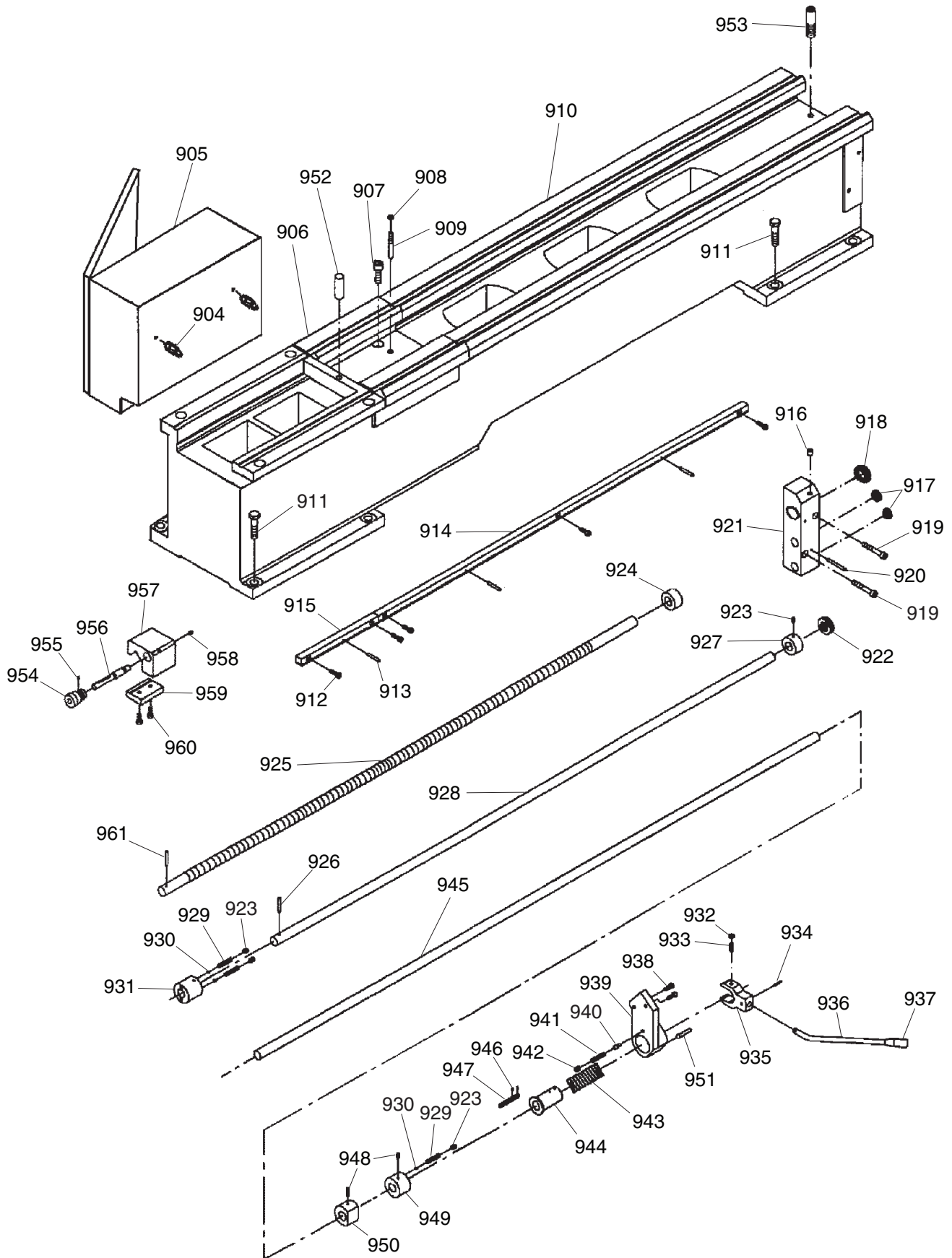


REF	PART #	DESCRIPTION
851	P0554Z0851	GEAR 30T
852	P0554Z0852	GEAR 40T
853	PSB24M	CAP SCREW M5-.8 X 16
854	P0554Z0854	SPECIAL WASHER
855	P0554Z0855	GEAR 25T
856	P0554Z0856	PIVOT ARM
857	PK19M	KEY 5 X 5 X 14
858	P0554Z0858	THREADED SHAFT
859	P0554Z0859	SLEEVE
860	P6103ZZ	BALL BEARING 6103ZZ
861	PR21M	INT RETAINING RING 35MM
862	P0554Z0862	GEAR 120T/127T
863	PW04M	FLAT WASHER 10MM
864	PN02M	HEX NUT M10-1.5
865	PN09M	HEX NUT M12-1.75
866	PW06M	FLAT WASHER 12MM
867	P0554Z0867	THREADED STUD

REF	PART #	DESCRIPTION
868	PK19M	KEY 5 X 5 X 14
869	P0554Z0869	GEAR 50T
870	P0554Z0870	SPECIAL FLAT WASHER
871	PSB01M	CAP SCREW M6-1 X 16
872	P0554Z0872	GEAR 32T
873	P0554Z0873	GEAR 40T
874	P0554Z0874	FRONT COVER
875	PSB02M	CAP SCREW M6-1 X 20
877	P0554Z0877	DOOR BRACKET
878	P0554Z0878	PIN 6 X 25
879	P0554Z0879	UPPER HINGE
880	P0554Z0880	HINGE PIN
881	P0554Z0881	LOWER HINGE
882	P0554Z0882	SIDE DOOR
883	PSB50M	CAP SCREW M5-.8 X 10
884	P0554Z0884	BRACKET
885	PS03M	PHLP HD SCR M6-1 X 8



Bed & Shaft Breakdown



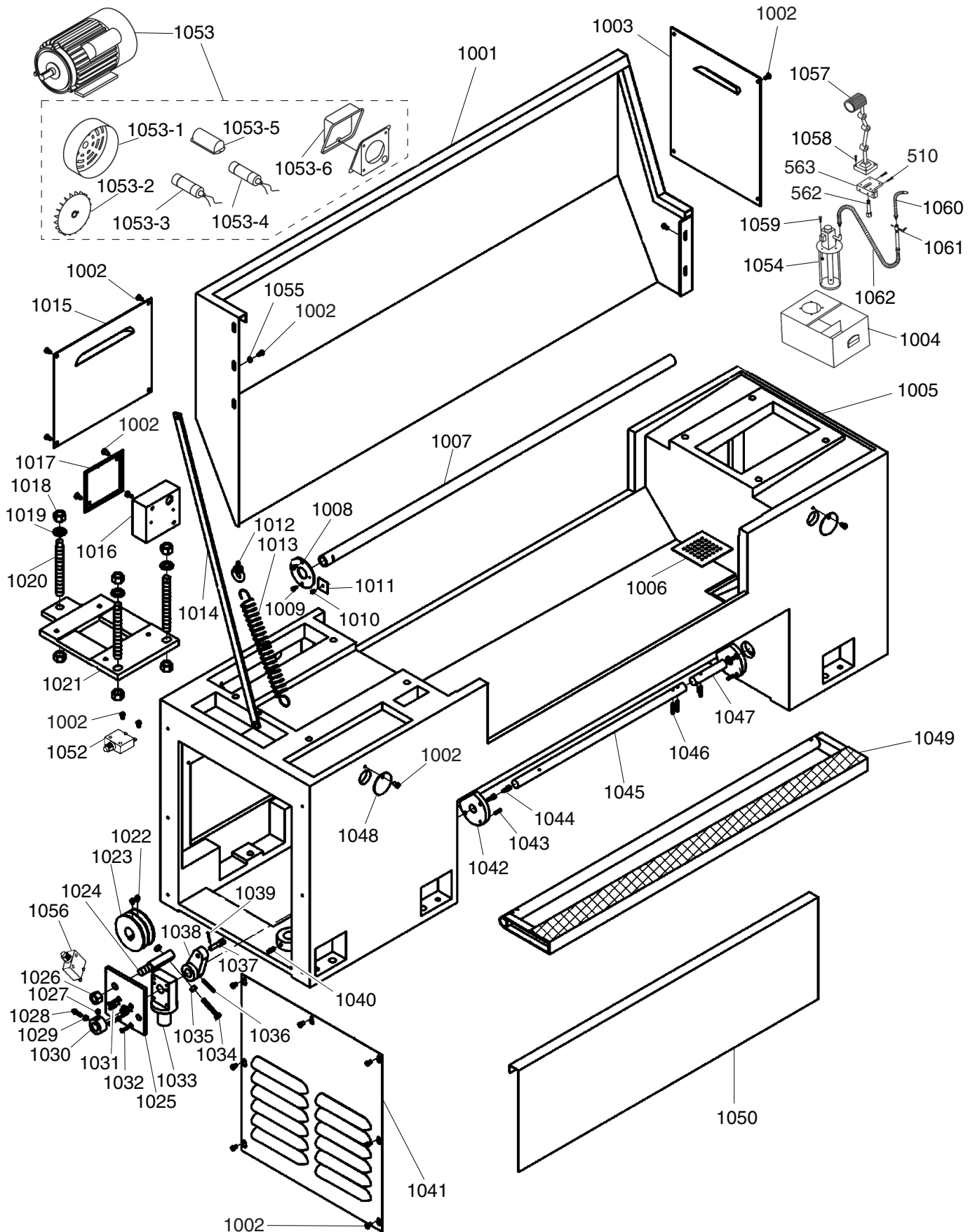
Bed & Shaft Parts List

REF	PART #	DESCRIPTION
904	P0554Z0904	THREADED STUD
905	P0554Z0905	ELECTRICAL BOX
906	P0554Z0906	GAP
907	PSB47M	CAP SCREW M10-1.5 X 40
908	PN03M	HEX NUT M8-1.25
909	P0554Z0909	THREADED PIN M8-1.25
910	P0554Z0910	BED
911	PB51M	HEX BOLT M16-2 X 50
912	PSB06M	CAP SCREW M6-1 X 25
913	P0554Z0913	PIN 6 X 35
914	P0554Z0914	LONG RACK
915	P0554Z0915	SHORT RACK
916	P0554Z0663	BALL OILER 10MM
917	P0554Z0917	PLUG
918	P0554Z0918	PLUG
919	PSB60M	CAP SCREW M8-1.25 X 55
920	P0554Z0920	PIN 8 X 55
921	P0554Z0921	END BRACKET
922	P8104	THRUST BEARING 8104
923	PSS16M	SET SCREW M8-1.25 X 10
924	P0554Z0924	LEADSCREW END BUSHING
925	P0554Z0925	LONGITUDINAL LEADSCREW 7/8-8 X 52
926	P0554Z0926	PIN 5 X 40
927	P0554Z0927	LOCK COLLAR
928	P0554Z0928	FEED ROD
929	P0554Z0929	COMPRESSION SPRING
930	P0554Z0410	STEEL BALL 6MM
931	P0554Z0931	CLUTCH
932	PN01M	HEX NUT M6-1

REF	PART #	DESCRIPTION
933	PSS25M	SET SCREW M6-1 X 20
934	P0554Z0934	PIN 3 X 20
935	P0554Z0935	CONTROL FORK
936	P0554Z0936	CONTROL HANDLE
937	P0554Z0556	HANDLE KNOB M10-1.5
938	PSB01M	CAP SCREW M6-1 X 16
939	P0554Z0939	CONTROL BRACKET
940	P0554Z0410	STEEL BALL 6MM
941	P0554Z0941	COMPRESSION SPRING
942	PSS20M	SET SCREW M8-1.25 X 8
943	P0554Z0943	COMPRESSION SPRING
944	P0554Z0944	SLEEVE
945	P0554Z0945	CONTROL ROD
946	PSS45M	SET SCREW M3-.5 X 6
947	PK24M	KEY 5 X 5 X 37
948	PSS06M	SET SCREW M8-1.25 X 16
949	P0554Z0949	LOCK COLLAR
950	P0554Z0950	SHIFT COLLAR
951	PSS11M	SET SCREW M6-1 X 16
952	P0554Z0952	PIN 16 X 40
953	P0554Z0953	STOP STUD M12-1.75 X 40
954	P0554Z0954	GRADUATED DIAL
955	P0554Z0955	PIN 3 X 6
956	P0554Z0956	SHAFT
957	P0554Z0957	BRACKET
958	PSS01M	SET SCREW M6-1 X 10
959	P0554Z0959	CLAMP PLATE
960	PSB02M	CAP SCREW M6-1 X 20
961	P0554Z0961	SHEAR PIN 5 X 40



Stand & Brake Breakdown



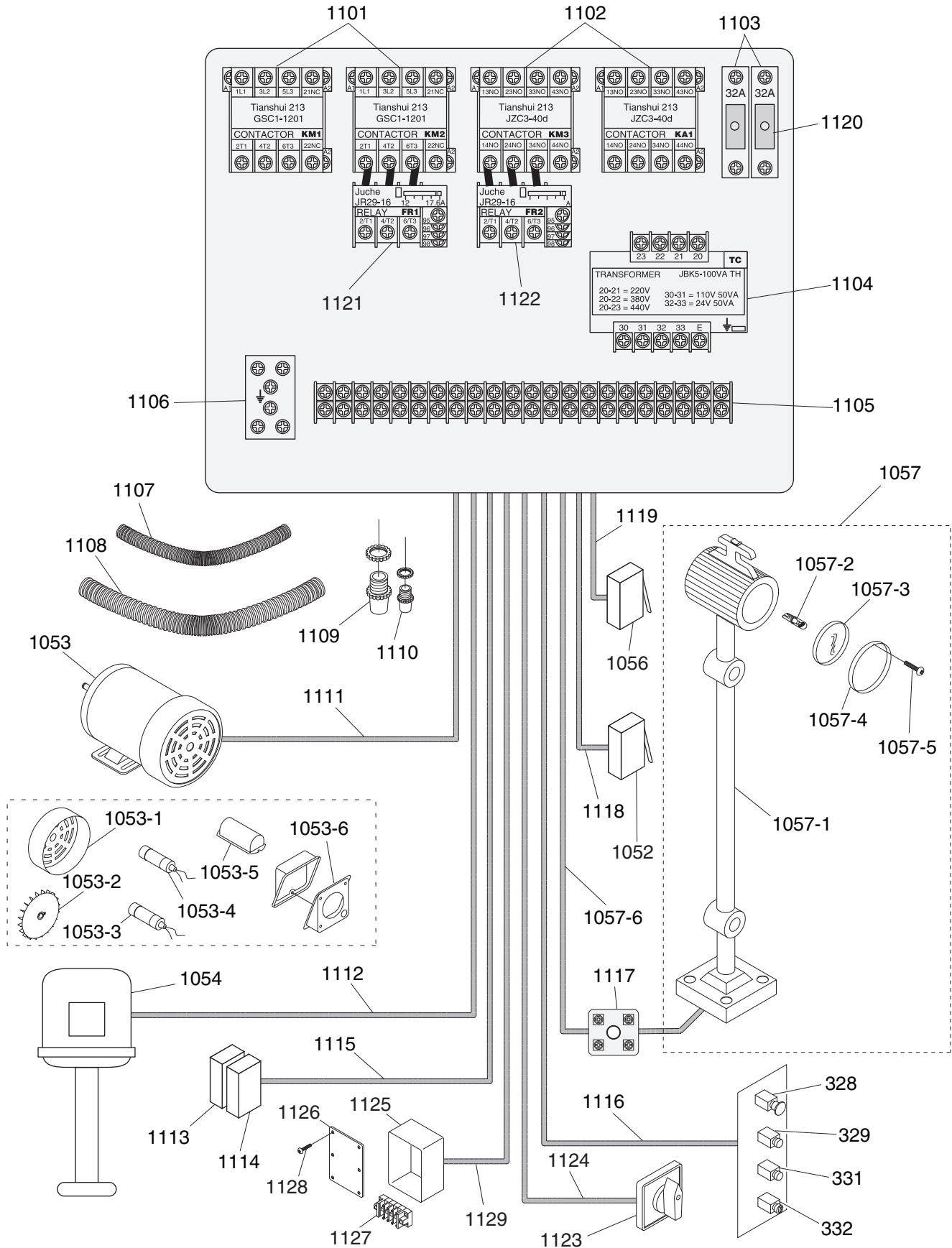
Stand & Brake Parts List

REF	PART #	DESCRIPTION
510	PSB02M	CAP SCREW M6-1 X 20
562	P0554Z0562	STRAIN RELIEF
563	P0554Z0563	LAMP BRACKET
1001	P0554Z1001	SPLASH GUARD
1002	PS68M	PHLP HD SCR M6-1 X 10
1003	P0554Z1003	RIGHT SIDE COVER
1004	P0554Z1004	COOLANT TANK
1005	P0554Z1005	BED STAND
1006	P0554Z1006	COOLANT SCREEN
1007	P0554Z1007	WIRE CONDUIT
1008	P0554Z1008	WIRE CONDUIT SUPPORT
1009	P0554Z1009	PLHP HD SCR M5-.8 X 80
1010	P0554Z1010	PLHP HD SCR M5-.8 X 80
1011	P0554Z1011	LOCKING PLATE
1012	P0554Z1012	EYE BOLT M8-1.25 X 30
1013	P0554Z1013	TENSION SPRING
1014	P0554Z1014	CONNECTING BAR
1015	P0554Z1015	REAR MOTOR COVER
1016	P0554Z1016	TERMINAL BOX
1017	P0554Z1017	TERMINAL BOX COVER
1018	PN13M	HEX NUT M16-2
1019	P0554Z1019	SPECIAL FLAT WASHER 16MM
1020	P0554Z1020	MOTOR BOLT
1021	P0554Z1021	MOTOR MOUNT
1022	PSS14M	SET SCREW M8-1.25 X 12
1023	P0554Z1023	MOTOR PULLEY
1024	P0554Z1024	END ROD SUPPORT
1025	P0554Z1025	MOUNTING PLATE
1026	PN13M	HEX NUT M16-2
1027	PSS16M	SET SCREW M8-1.25 X 10
1028	P0554Z1028	ROD SUPPORT
1029	PN01M	HEX NUT M6-1
1030	P0554Z1030	END NAIL SUPPORT
1031	P0554Z1031	PIN 5 X 20
1032	PS06M	PHLP HD SCR M5-.8 X 20

REF	PART #	DESCRIPTION
1033	P0554Z1033	ADJUSTMENT BRACKET
1034	PS88M	PHLP HD SCR M8-1.25 X 50
1035	PN03M	HEX NUT M8-1.25
1036	P0554Z1036	PIN 5 X 40
1037	P0554Z1037	CONNECTING SHAFT
1038	P0554Z1038	FORK
1039	P0554Z1039	PIN 2 X 20
1040	PSS19M	SET SCREW M8-1.25 X 30
1041	P0554Z1041	LEFT SIDE COVER
1042	P0554Z1042	BRAKE SHAFT SUPPORT
1043	P0554Z1043	PIN 5 X 20
1044	PSB01M	CAP SCREW M6-1 X 16
1045	P0554Z1045	BRAKE SHAFT LONG
1046	P0554Z1046	PIN 5 X 30
1047	P0554Z1047	BRAKE SHAFT SHORT
1048	P0554Z1048	LIFTING HOLE COVER
1049	P0554Z1049	BRAKE PEDAL
1050	P0554Z1050	COOLANT TRAY COVER
1052	P0554Z1052	SIDE DOOR SWITCH
1053	P0554Z1053	MOTOR 3HP 220V 1PH
1053-1	P0554Z1053-1	MOTOR FAN COVER
1053-2	P0554Z1053-2	MOTOR FAN
1053-3	P0554Z1053-3	S CAPACITOR 150M 250V 3" X 2"
1053-4	P0554Z1053-4	R CAPACITOR 30M 500V 3" X 2"
1053-5	P0554Z1053-5	CAPACITOR COVER
1053-6	P0554Z1053-6	MOTOR WIRING JUNCTION BOX
1054	P0554Z1054	COOLANT PUMP 40W 220V 1PH
1055	PW03M	FLAT WASHER 6MM
1056	P0554Z1056	KILL SWITCH
1057	P0554Z1057	HALOGEN LAMP ASSEMBLY
1058	PS15M	PHLP HD SCR M6-1 X 14
1059	PSB31M	CAP SCREW M8-1.25 X 25
1060	P0554Z1060	COOLANT NOZZLE
1061	P0554Z1061	COOLANT ON/OFF VALVE
1062	P0554Z1062	COOLANT TANK HOSE



Electrical Breakdown



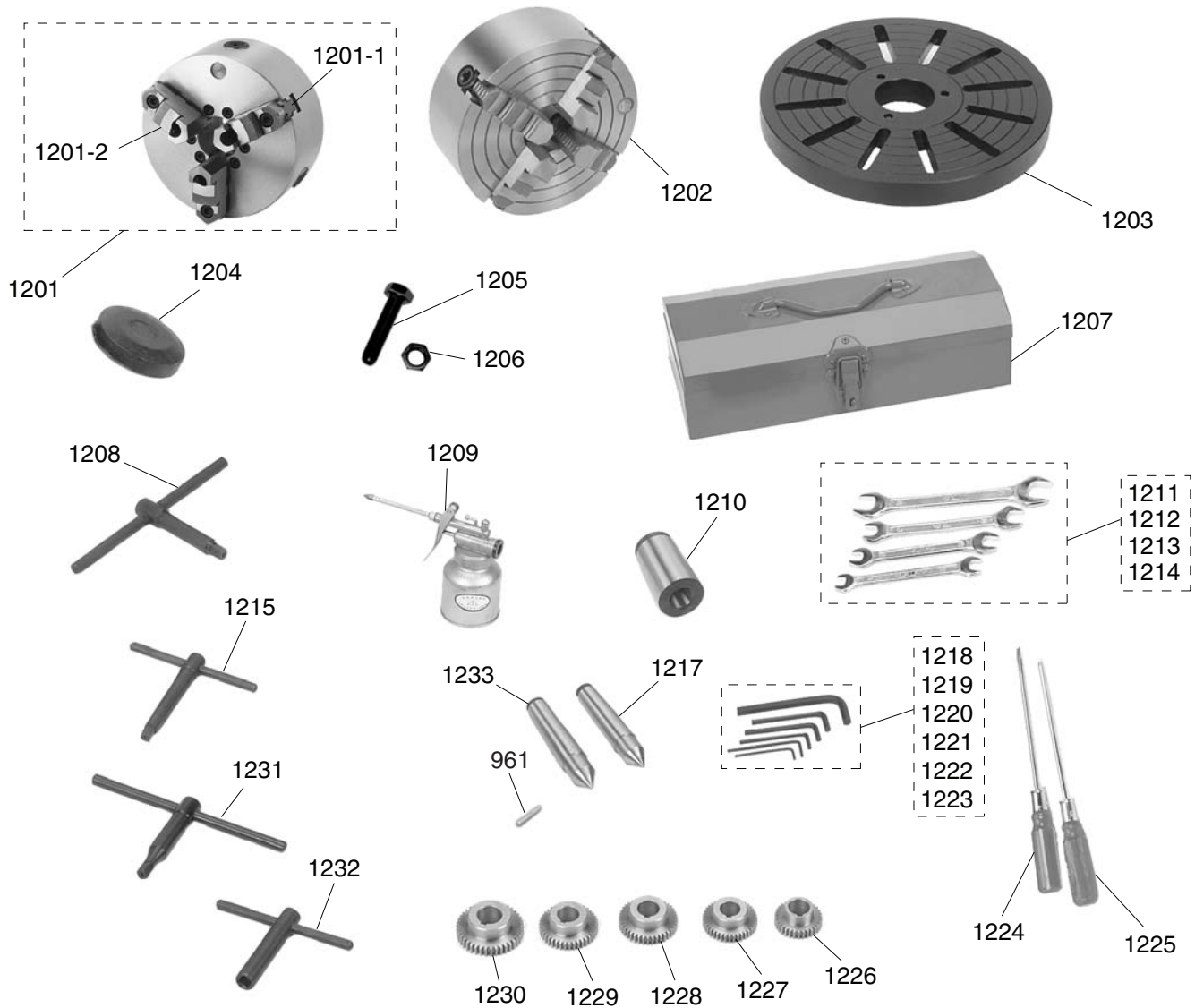
Electrical Parts List

REF	PART #	DESCRIPTION
328	P0554Z0328	STOP BUTTON ASSEMBLY
329	P0554Z0329	JOG BUTTON ASSEMBLY
331	P0554Z0331	POWER LAMP ASSEMBLY
332	P0554Z0332	COOLANT SWITCH ASSEMBLY
1052	P0554Z1052	SIDE DOOR SWITCH
1053	P0554Z1053	MOTOR 3HP 220V 1PH
1053-1	P0554Z1053-1	MOTOR FAN COVER
1053-2	P0554Z1053-2	MOTOR FAN
1053-3	P0554Z1053-3	S CAPACITOR 150M 250V 3" X 2"
1053-4	P0554Z1053-4	R CAPACITOR 30M 500V 3" X 2"
1053-5	P0554Z1053-5	CAPACITOR COVER
1053-6	P0554Z1053-6	MOTOR WIRING JUNCTION BOX
1054	P0554Z1054	COOLANT PUMP 40W 220V 1PH
1056	P0554Z1056	KILL SWITCH
1057	P0554Z1057	HALOGEN LAMP ASSEMBLY
1057-1	P0554Z1057-1	LAMP BODY
1057-2	P0554Z1057-2	HALOGEN BULB 24V
1057-3	P0554Z1057-3	BULB COVER
1057-4	P0554Z1057-4	BULB COVER RETAINER
1057-5	PS55M	PHLP HD SCR M3-.5 X 10
1057-6	P0554Z1057-6	LAMP BODY CORD
1101	P0554Z1101	CONTACTOR TIAN GSC1-1201 220V
1102	P0554Z1102	CONTACTOR TIAN JZC3-40D 220V
1103	P0554Z1103	FUSE HOLDER
1104	P0554Z1104	TRANSFORMER JBK5-100VATH

REF	PART #	DESCRIPTION
1105	P0554Z1105	TERMINAL BLOCK 22-POST
1106	P0554Z1106	GROUNDING BLOCK
1107	P0554Z1107	CORD COVER SMALL
1108	P0554Z1108	CORD COVER LARGE
1109	P0554Z1109	STRAIN RELIEF LARGE
1110	P0554Z1110	STRAIN RELIEF SMALL
1111	P0554Z1111	MAIN MOTOR CORD
1112	P0554Z1112	PUMP MOTOR CORD
1113	P0554Z1113	SPINDLE SWITCH
1114	P0554Z1114	SPINDLE SWITCH
1115	P0554Z1115	SPINDLE SWITCH CORD
1116	P0554Z1116	CONTROL PANEL CORD
1117	P0554Z1117	CERAMIC TERMINAL BLOCK 2C
1118	P0554Z1118	SIDE DOOR SWITCH CORD
1119	P0554Z1119	BRAKE SWITCH CORD
1120	P0554Z1120	32A FUSE
1121	P0554Z1121	OL RELAY JUCHE JR29-16 12-17.6A
1122	P0554Z1122	OL RELAY JUCHE JR29-16 0.35-0.52A
1123	P0554Z1123	MAIN POWER SWITCH
1124	P0554Z1124	MAIN POWER SWITCH CORD
1125	P0554Z1125	POWER TERMINAL BOX
1126	P0554Z1126	POWER TERMINAL BOX COVER
1127	P0554Z1127	TERMINAL BLOCK 8-POST
1128	P0554Z1128	PHLP HD SCR M8-1.25 X 25
1129	P0554Z1129	POWER CORD



Accessories

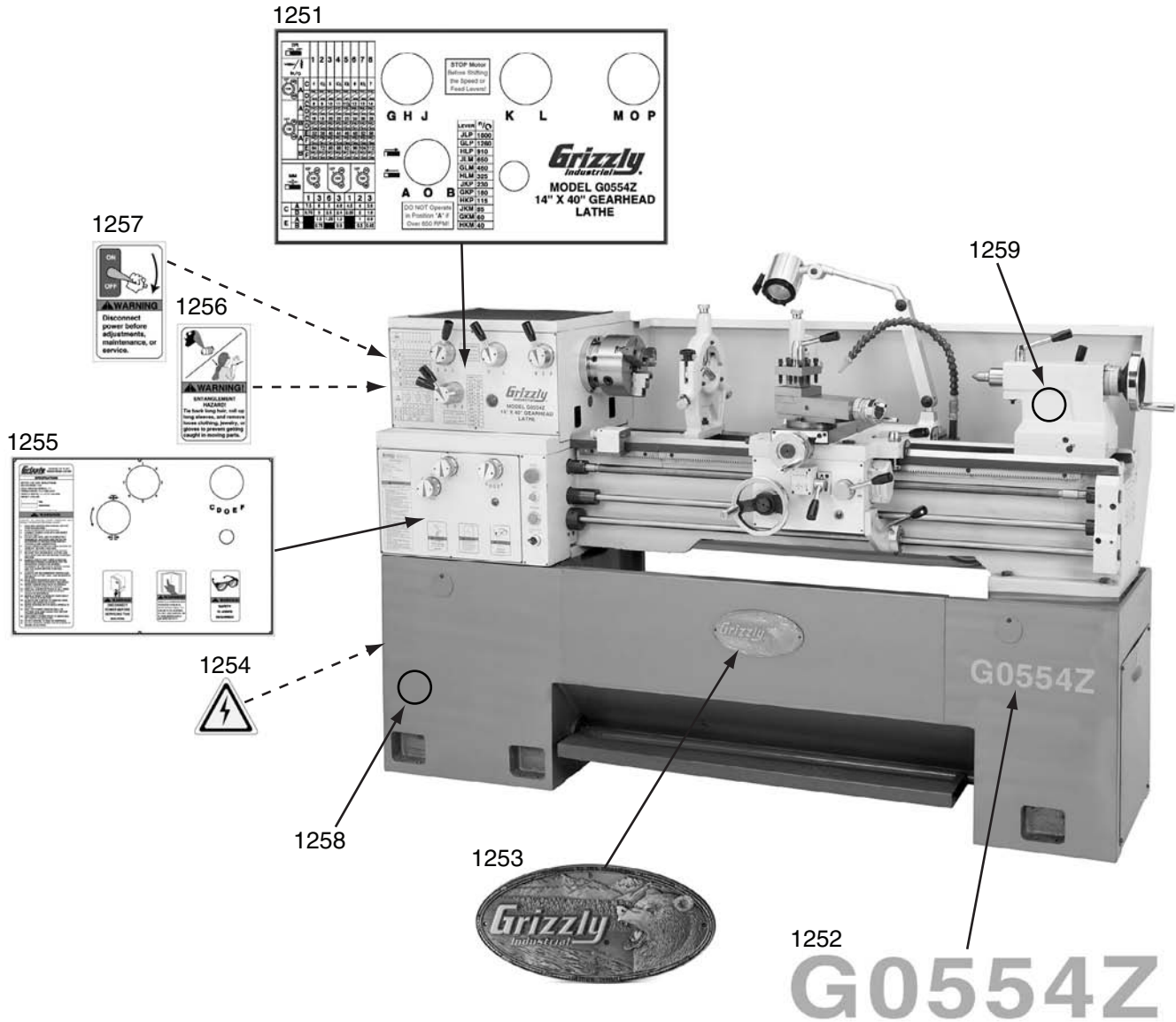


REF	PART #	DESCRIPTION
961	P0554Z0961	SHEAR PIN 5 X 40
1201	P0554Z1201	3-JAW CHUCK ASSEMBLY 6"
1201-1	P0554Z1201-1	3-JAW BOTTOM (QTY 1)
1201-2	P0554Z1201-2	3-JAW TOP (QTY 1)
1202	P0554Z1202	4-JAW CHUCK ASSEMBLY 8"
1203	P0554Z1203	FACEPLATE 12
1204	P0554Z1204	FOOT PAD
1205	P0554Z1205	LEVELING BOLT M12-1.75 X 50
1206	P0554Z1206	THIN HEX NUT M12-1.75
1207	P0554Z1207	TOOLBOX
1208	P0554Z1208	4-JAW CHUCK KEY
1209	P0554Z1209	OIL CAN
1210	P0554Z1210	TAPERED SLEEVE MT#5-MT#3
1211	P0554Z1211	WRENCH 9/11
1212	PWR1012	WRENCH 10/12
1213	PWR1214	WRENCH 12/14
1214	PWR1417	WRENCH 14/17
1215	P0554Z1215	SPINDLE LOCK KEY

REF	PART #	DESCRIPTION
1217	P0554Z1217	DEAD CENTER MT#3 CARBIDE TIP
1218	PAW02.5M	HEX WRENCH 2.5MM
1219	PAW03M	HEX WRENCH 3MM
1220	PAW04M	HEX WRENCH 4MM
1221	PAW05M	HEX WRENCH 5MM
1222	PAW06M	HEX WRENCH 6MM
1223	PAW08M	HEX WRENCH 8MM
1224	PSDF2	SCREWDRIVER FLAT #2
1225	PSDP2	SCREWDRIVER PHILLIPS #2
1226	P0554Z1226	CHANGE GEAR 30T
1227	P0554Z1227	CHANGE GEAR 32T
1228	P0554Z1228	CHANGE GEAR 35T
1229	P0554Z1229	CHANGE GEAR 40T
1230	P0554Z1230	CHANGE GEAR 48T
1231	P0554Z1231	3-JAW CHUCK KEY
1232	P0554Z1232	4-WAY TOOL POST WRENCH
1233	P0554Z1233	DEAD CENTER MT#3 HSS



Label Placement



REF	PART #	DESCRIPTION
1251	P0554Z1251	LATHE CONFIGURATION LABEL
1252	P0554Z1252	MODEL NUMBER LABEL
1253	G8589	GRIZZLY OVAL NAMEPLATE
1254	PLABEL-14	ELECTRICITY LABEL
1255	P0554Z1255	MACHINE ID LABEL

REF	PART #	DESCRIPTION
1256	PLABEL-55	ENTANGLEMENT HAZARD LABEL
1257	PLABEL-53	DISCONNECT WARNING LABEL
1258	PPAINT-1	GRIZZLY GREEN TOUCH-UP PAINT
1259	PPAINT-11	GRIZZLY PUTTY TOUCH-UP PAINT

⚠️ WARNING

Safety labels warn about machine hazards and ways to prevent injury. The owner of this machine **MUST** maintain the original location and readability of the labels on the machine. If any label is removed or becomes unreadable, **REPLACE** that label before using the machine again. Contact Grizzly at (800) 523-4777 or www.grizzly.com to order new labels.





WARRANTY CARD

Name _____
 Street _____
 City _____ State _____ Zip _____
 Phone # _____ Email _____ Invoice # _____
 Model # _____ Order # _____ Serial # _____

The following information is given on a voluntary basis. It will be used for marketing purposes to help us develop better products and services. **Of course, all information is strictly confidential.**

1. How did you learn about us?

Advertisement Friend Catalog
 Card Deck Website Other:

2. Which of the following magazines do you subscribe to?

<input type="checkbox"/> Cabinetmaker & FDM	<input type="checkbox"/> Popular Science	<input type="checkbox"/> Wooden Boat
<input type="checkbox"/> Family Handyman	<input type="checkbox"/> Popular Woodworking	<input type="checkbox"/> Woodshop News
<input type="checkbox"/> Hand Loader	<input type="checkbox"/> Precision Shooter	<input type="checkbox"/> Woodsmith
<input type="checkbox"/> Handy	<input type="checkbox"/> Projects in Metal	<input type="checkbox"/> Woodwork
<input type="checkbox"/> Home Shop Machinist	<input type="checkbox"/> RC Modeler	<input type="checkbox"/> Woodworker West
<input type="checkbox"/> Journal of Light Cont.	<input type="checkbox"/> Rifle	<input type="checkbox"/> Woodworker's Journal
<input type="checkbox"/> Live Steam	<input type="checkbox"/> Shop Notes	<input type="checkbox"/> Other:
<input type="checkbox"/> Model Airplane News	<input type="checkbox"/> Shotgun News	
<input type="checkbox"/> Old House Journal	<input type="checkbox"/> Today's Homeowner	
<input type="checkbox"/> Popular Mechanics	<input type="checkbox"/> Wood	

3. What is your annual household income?

\$20,000-\$29,000 \$30,000-\$39,000 \$40,000-\$49,000
 \$50,000-\$59,000 \$60,000-\$69,000 \$70,000+

4. What is your age group?

20-29 30-39 40-49
 50-59 60-69 70+

5. How long have you been a woodworker/metalworker?

0-2 Years 2-8 Years 8-20 Years 20+ Years

6. How many of your machines or tools are Grizzly?

0-2 3-5 6-9 10+

7. Do you think your machine represents a good value? Yes No

8. Would you recommend Grizzly Industrial to a friend? Yes No

9. Would you allow us to use your name as a reference for Grizzly customers in your area?

Note: We never use names more than 3 times. Yes No

10. Comments: _____

CUT ALONG DOTTED LINE

FOLD ALONG DOTTED LINE



Place
Stamp
Here



GRIZZLY INDUSTRIAL, INC.
P.O. BOX 2069
BELLINGHAM, WA 98227-2069



FOLD ALONG DOTTED LINE

Send a Grizzly Catalog to a friend:

Name _____
Street _____
City _____ State _____ Zip _____

TAPE ALONG EDGES--PLEASE DO NOT STAPLE

WARRANTY AND RETURNS

Grizzly Industrial, Inc. warrants every product it sells for a period of **1 year** to the original purchaser from the date of purchase. This warranty does not apply to defects due directly or indirectly to misuse, abuse, negligence, accidents, repairs or alterations or lack of maintenance. This is Grizzly's sole written warranty and any and all warranties that may be implied by law, including any merchantability or fitness, for any particular purpose, are hereby limited to the duration of this written warranty. We do not warrant or represent that the merchandise complies with the provisions of any law or acts unless the manufacturer so warrants. In no event shall Grizzly's liability under this warranty exceed the purchase price paid for the product and any legal actions brought against Grizzly shall be tried in the State of Washington, County of Whatcom.

We shall in no event be liable for death, injuries to persons or property or for incidental, contingent, special, or consequential damages arising from the use of our products.

To take advantage of this warranty, contact us by mail or phone and give us all the details. We will then issue you a "Return Number," which must be clearly posted on the outside as well as the inside of the carton. We will not accept any item back without this number. Proof of purchase must accompany the merchandise.

The manufacturers reserve the right to change specifications at any time because they constantly strive to achieve better quality equipment. We make every effort to ensure that our products meet high quality and durability standards and we hope you never need to use this warranty.

Please feel free to write or call us if you have any questions about the machine or the manual.

Thank you again for your business and continued support. We hope to serve you again soon.

grizzly.com[®]

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